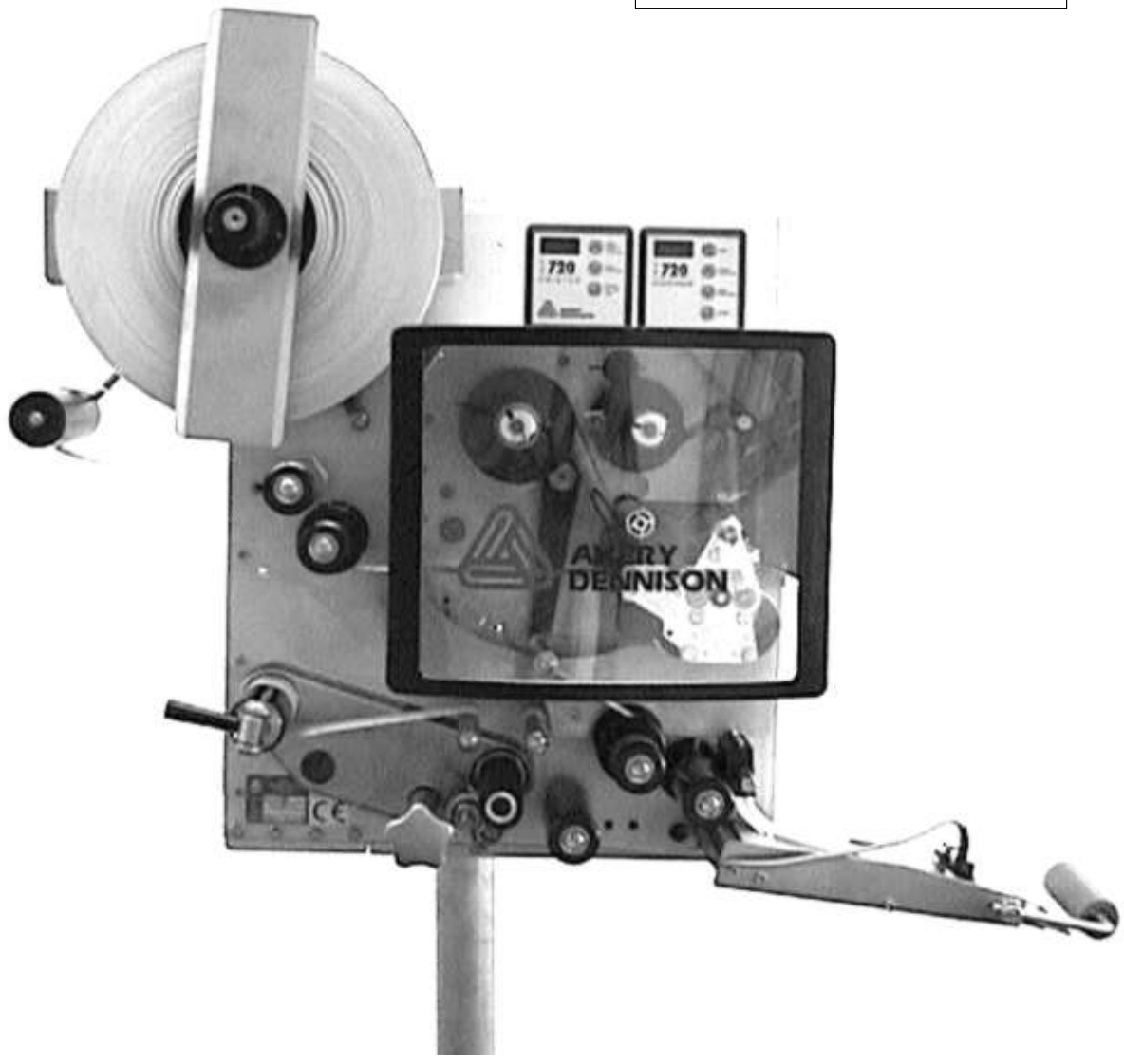
ALX 720

User Manual



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1. Important Notes

1.1 Overview

The 720 is a fully automatic print and apply machine. Handling is very easy and can be learned with a minimum of training. For operation, only a few adjustments are necessary. The machine is controlled by a microprocessor and because of its programmable functions it can be used in many applications.

Except of cleaning the print head, rollers and the different sensor's there is no periodical maintenance necessary.

This manual should help you to operate the 720. In chapter 2 the machine is described and many expressions are explained. For normal operating chapters 3 and 4 are important. All other chapters give additional details of the machine.

The ALX 720 is available in a right- or a left-hand version. The expression right or left is related to the direction of product transport. In the following, a right hand machine is explained. For the left hand version all explanations have to be mirrored.

1.1.1 Manufacturer

For technical questions, particularly in case of problems, your local service organisation will be pleased to help you.

This machine was built by:

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1.1.2 Technical State

Technical State	4/09
Dispenser Software	7.0
Printer Software	1.68

1.1.3 Copyright

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1.2 Safety

1.2.1 General Safety Notes

1.2.2 Warning Notes in the Text

In this description, two types of notes can be found:

- *Warning note* – indicates a possible risque of injury for the user. Ignoring the warning can lead to injuries or material damages.
  Example:

  CAUTION! - The machine is connected to mains. Only authorised personnel may open the cover. Operation without this cover is not allowed.

- *Special advice* regarding the carrying out – please notice!
  Example:

  Note: Please take note of the given notes and advices. They serve your safety as well as the preservation of value of the machine.

2. Description

This chapter explains the structure and the function of the 720 dispenser part. The expressions used are explained here.

CAUTION! - The machine is connected to mains. Only authorised personnel may open the cover. Operation without this cover is not allowed.

2.1 Mechanics

The label material is unwound from roller (003). The maximum diameter of the label roll is 300 mm. Max. width is 100 mm. The material roll is guided by 2 removable plates (002). The guide plate in front has to be pressed against the label roll. Behind the cap (004) of unwind mandrel (003) an adjustment screw for the brake is located. The unwind brake avoids after run of the label roll when the label drive stops. The dancer arm (011) keeps the material tight and the acceleration forces low. The deviator roller (008) makes sure that the material is guided correctly.

Note: For labels longer than 100 mm and in "side labelling applications" it is recommended to use the optional available kit dancer arm controlled unwind brake. This device avoids uncontrolled after run of label material. The brake should not be fixed too tight, otherwise the motor may stall or the material web gets broken.

Behind the deviator roller (009) the material is guided to the printer unit. First it passes the both opposite holder for the label sensor. The sensor could be positioned across the whole label to get the optimised position. In one of the two red guides a sensor to detect end of material is mounted. Behind the print unit the material is hold in a loop buffer. The loop is controlled by the position of the dancer arm. If the loop is not filled, the printer starts to fill the loop again. At a adjustable position all further starts of the dispenser are ignored. Behind the loop the material is guided to the dispensing edge. The brush (006) keeps the material tight without disturbing the movement. At the dispensing edge (010) the label sensor (007) is mounted. The label sensor detects the gaps between labels. The label sensor comprises of a light source and a light receiver. The sensitivity can be adjusted by the operators panel.

At the dispensing edge (010) the label is separated from the backing paper. By means of a soft (005) roller the label is applied on to the product. Roller (012) makes sure that the material is always guided properly around the dispensing edge. Drive roller (001) keeps the transport speed of the material constant. Deviator rollers (012) guide the backing material around the drive roller (001). The pressure mechanics (013) press the backing paper against the drive roller (001).

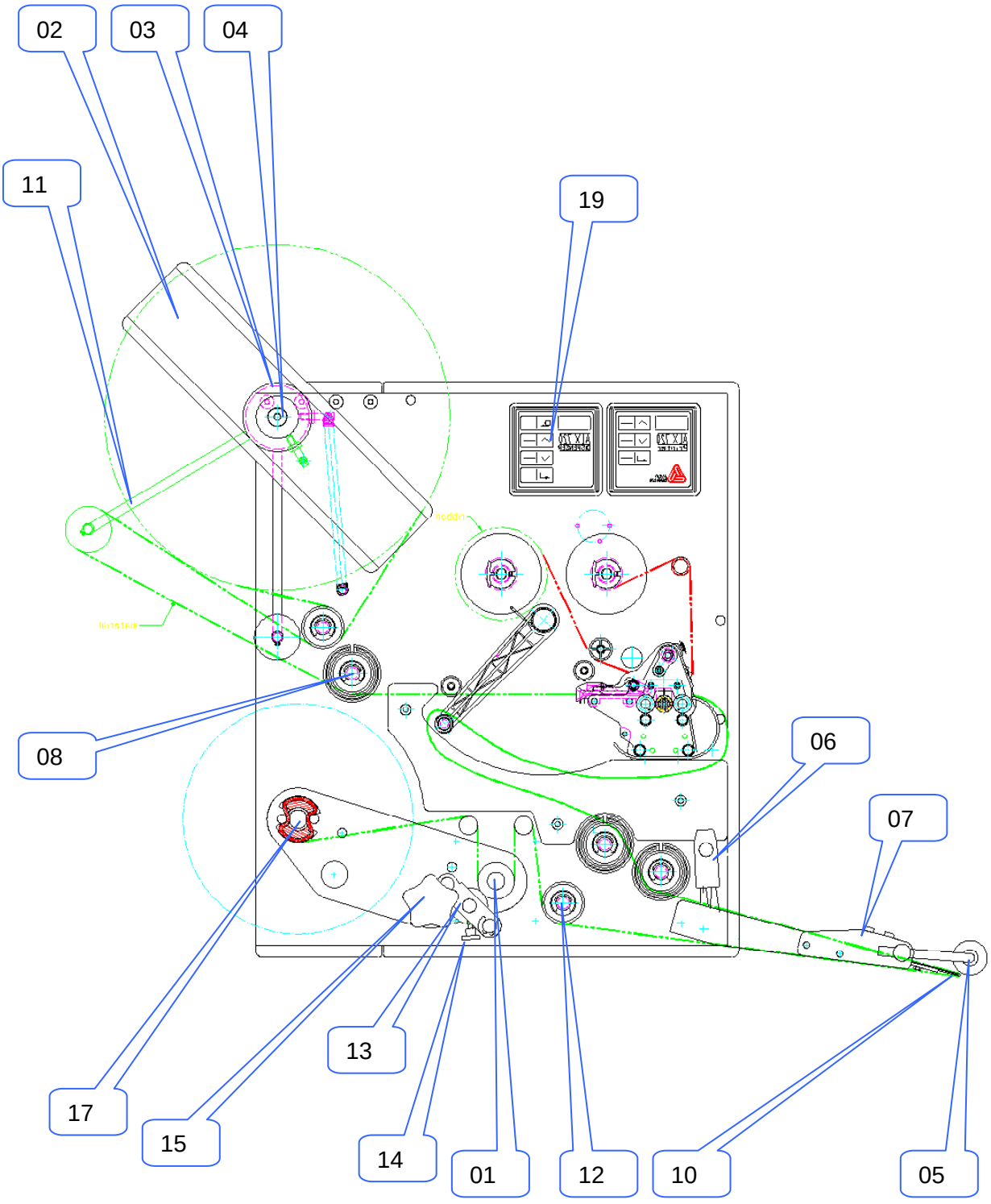


Figure 1 Layout 720

With the handle (015) you may open and close the pressure mechanics (013). When inserting the material the pressure roller has to be opened. Dispensing is only possible when the handle (015) is in the closed position. Via the deviator roller (016) the backing paper is guided to the

rewind mandrel (017). The cone between the 4 pins can be pulled out to allow the reward backing paper to be removed.
Except for the drive roller (001) and the material brush (006) the 720 has no wearing parts. The operator panel (019) is described in the next chapter.
A threading diagram is affixed to the front of the 720 which shows how the label material should be threaded through the machine.
Screw (014) secures the position of the pressure roller (013) in a lateral direction. In order to achieve a reliable run of the label web position, adjust the roller to the centre of the label web.

2.2 Operator panels

There are two operator panels for handling the machine. The operator panel for the dispenser is shown below, it has a 4 digit LED display and 4 membrane keys.

Figure 2 Operator panel dispenser

The 4 soft keys have following functions:

FEED By pressing this key one label will be dispensed. When the machine displays INIT pressing this key will start initialisation of the machine. An initialisation has to be made each time a new material is used. If the FEED key is pressed and held as the machine is turned on then the machine carries out an automatic initialisation of the label parameters "CONT" and "LPIT".

PRIOR This key moves up the menu or increases the value of a (Prior function) parameter. If the up arrow key is pressed and held as the machine is turned on the product menu is selected.

NEXT This key moves down the menu or decreases the value of a (Next function) parameter. If the down arrow key is pressed and held as the machine is turned on the standard menu is selected.

ENTER: This key is used to enter or exit a menu point or to cancel a warning or error message.

When the keys have different meanings, it will be explained in the relevant menu description.

The printer part is equipped with it's own display – so you can handle the printer and the dispenser completely independent. The operator panel for the dispenser is shown in , it has a 4 digit LED display and 3 membrane keys.

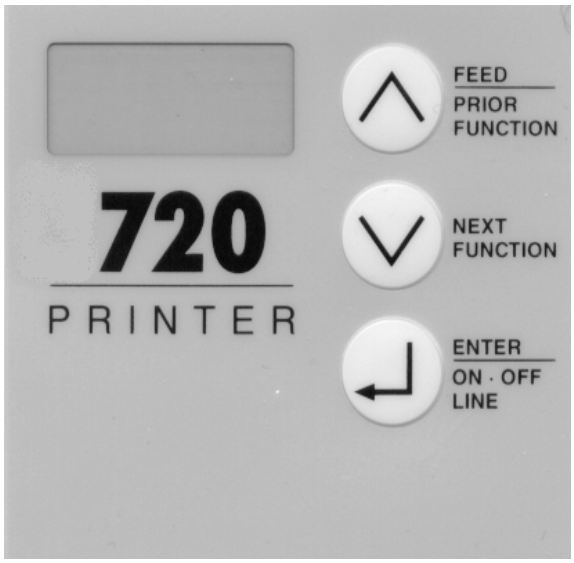


Figure 3 Operator panel printer

FEED / PRIOR By pressing this key one label will be dispensed, if OFF or On is displayed. This key moves up the menu or increases the value of a (Prior function) parameter.

NEXT This key moves down the menu or decreases the value of a (Next function) parameter.

ENTER: Pressing this keys normally toggle between Online / Offline mode. The key is also used to enter or exit a menu point or to cancel a warning or error message.

2.3 Plug board

On the side a plate contains all plugs for external connections. If you use the optional connections, it is strongly recommended to do this by means of the optional available SUB-D connectors. This ensures best EMI stability of the machine.

There is one unit include the mains switch, the mains cable socket and the fuses. The fuse holder setting you have to select according to your local main voltage (100, 120, 220 or 240 V). You carry this out by taking off the fuse holder and position the fuse holder insert accordingly.

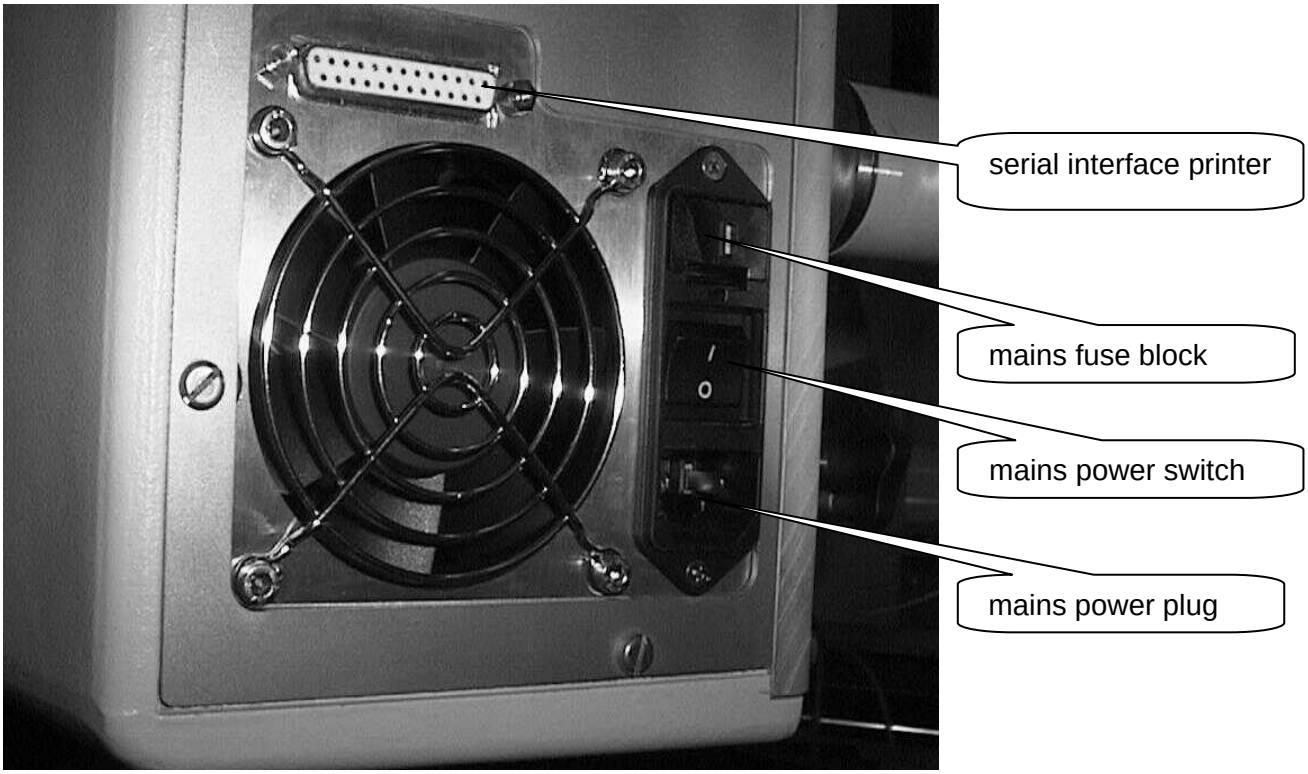


Figure 4 Main switch and printer interface

The plug at the top of the plate are the connections to the dispenser unit. Standard execution in this machine is one I/O plug prepared for the product sensor and for the applicator. There are some more holes for optional functions. The connections of the plugs are described in chapter “connections”.

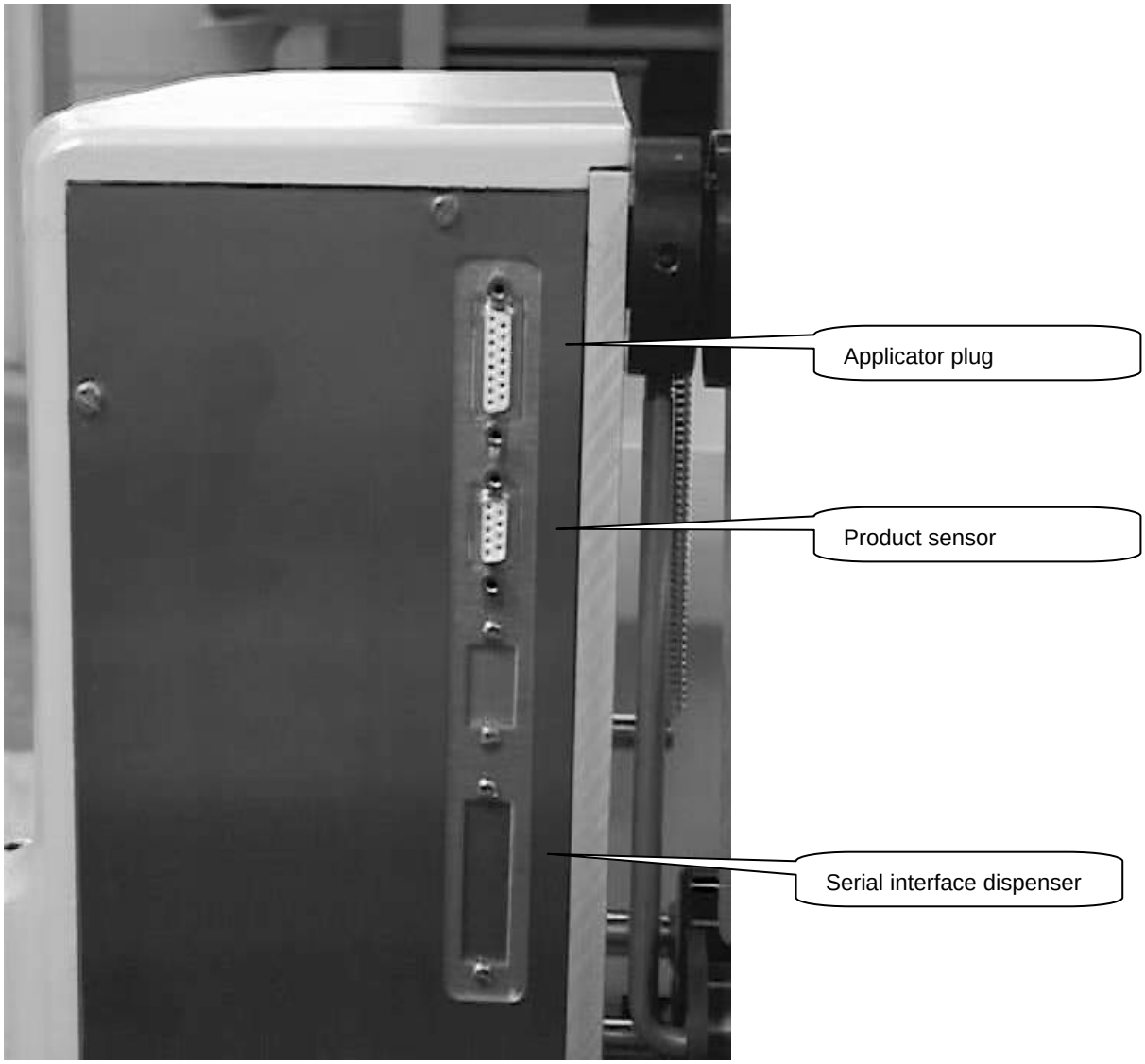


Figure 5 Plugs for dispenser

3. Preparing the machine

3.1 Installation

3.1.1 Unpacking of the unit

- Before removing the unit off the box, don't hold the machine on the dispensing edge, printer unit to prevent disadjustment off the machine.
- For mounting the machine, a complete system of holding tools is available. Ask your Avery representative.
- Take care that the machine is safe and stable mounted.
- There are rotating parts on the machine. Do the necessary actions to prevent that anybody can be caught from these parts.

3.1.2 Connection of the machine

Before connecting the machine to the mains, check the correct setting of the line voltage. For the connection of sensor, applicators e.g. see the chapter connections. Fix all cables to prevent accidents and damaging of cables. Have also a look to the EMI chapter for proper machine operation.
For checking of correct operation of sensors, applicators use the check functions SCHK, I_CH and O_CH.

3.1.3 General setting

Normally the setting is done, but before operation check and note the general dispenser configuration: dispenser direction, machine type, applicator mode, and APSF function.
The printer function IFAC / PORT has to be set to RS23.

3.2 Preparing the Dispenser

3.2.1 Inserting material

Insert your label material in the machine to follow the instructions in the chapter Operation / Threading.

3.2.2 Defining label data

For correct dispenser operation, you have to tell the machine the length of the label and adjust the label sensor. Normally this is done automatically. For this follow the instructions in chapter Operation / Initialise material. For initialisation of the dispenser set the printer to OFF.

There are some reasons the automatic initialisation is not possible:

- Using another then the standard optical label sensor
- Label material with a low contrast ratio between label and backing paper
- Labels with holes inside the label

In this case you have to set one or both of the parameter manually. Activate the **extended standard menu** to do the settings by:

- Pressing both keys NEXT and PRIOR simultaneously
  Display: **CODE**
- Password **CODE** entering:
  1 time pressing the key PRIOR FUNCTION
  2 times pressing the key NEXT FUNCTION
  3 times pressing the key ENTER
  Display: **LPIT**
- Setting the label length
  Enter the LPIT function by pressing ENTER. Measure the distance from one label edge to the edge of the next label. Enter the value in mm by using the function keys. Press ENTER to leave the function. See also the information below.
- Change the setting of the label sensor
  If another label sensor then the Wenglor type will be used, call the CONT function and set the value to any M006.
  If the contrast ratio is low, follow the instructions to adjust manually contrast.
- To store the setting permanent leaves the menu with the quit function. If you power off the machine without quit all modification are lost.
- By pressing the key FEED one label can be dispensed if you are in the parameter selection.

Setting LPIT manually
To initialise labels with cut outs such as the one shown below - the "LPIT" parameter should be used to enter the label pitch of the label web.
All other label edges seen by the label sensor will be ignored until the distance adjusted in the "LPIT" parameter has been fed through the label sensor.

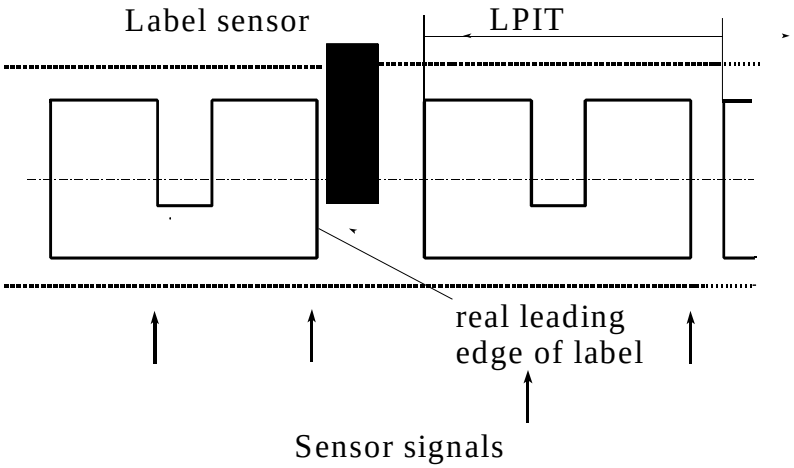


Figure 6 Definition of LPIT

Manual adjustment of the CONT parameter

- Remove a label from the backing paper and slide it inside the sensor.
- Reduce the value with the PRIOR key until the LED switched on.
- Press the key NEXT until the LED switched off. If there are marks on the backing paper do the measurement on this position.
- Note the value GAP xxx
- Slide the backing paper including label inside the sensor. Use the lightest position on the label for the adjustment.
- Increase with the NEXT key the value until LED lights again. Note the second value GAP yyy
- Calculate the contrast value by the formula (xxx + yyy) / 2 and set it.
- Manual adjustment is completed.

With a difference of less than 20 an operation with this kind of sensor is not possible (sometimes two or more labels are dispensed).

3.2.3 Label guide

On some of the axles there are guiding clamps. Adjust the clamps near the machine so all have the same distance to the front plate (31.5 mm). The outer clamps should be mounted that the guide but not bend the label material.
The front of the dispensing edge has a rot, which can be adjusted for straighten the material guiding. Switch the printer to OFF and spend several labels by pressing the dispenser FEED key. If the material guiding is running out of the guiding way, adjust the rot by loosing two screws at the dispensing edge.

3.3 Dispenser Setup

For adjusting the dispenser function, set the printer to OFF.

3.3.1 Stop position

The first step is to adjust the stop position. This is the basic adjustment of the dispense process. Also in case of problems with the machine check if the stop position is okay.

Figure 7 Stop position

The stop position should be adjusted so that the label stops at the dispensing edge or up to 3 mm behind.
For a correct operation of the automatic label compensation, they will compensate a missing label on the web, first the distance between label sensor and dispensing edge has to be defined. Do this by calling the DIST function in the configuration menu. Check the setting by removing a label before the label sensor from the web. Give a start signal to the machine by triggering the start sensor (not the FEED key) and see if the compensation is done on the right position. Do the fine adjustment with the STOD function.

3.3.2 Fixed dispensing speed

The second step is to adjust the dispense speed. If an APSF sensor is used see 3.3.3.
If an applicator is used, the dispense speed has no influence to the dispense process. Continue with 3.3.4.
Set POS to the distance between start sensor and dispensing edge. If installed remove the roller to press the label onto the product. Now try to dispenser one product. If the label has wrinkles reduce the speed VELO. If the product peels out the label, so the stop position of the next label is before the last position increase the speed. Normally your dispense speed should be a little bit higher then your product speed.

3.3.3 Automatic dispensing speed (APSF)

With an connected rotary encoder the dispensing speed follows the measured product speed. To adjust the speed use the EGRA function located in the extended standard menu. The measured speed will be displayed in the VELO function. Do the adjustment in the same way described for fixed speed.

3.3.4 Label position on the product

At least adjust the position of the label on the product with the POS function or with the STAD function, if an applicator is in use.

3.3.5 Product data bank

Save your setting in one of the product data banks. If different products and / or labels are in use up to nine different combinations could be stored. Define and store the different product data. The select the product data bank mode by holding the PRIOR key during power on. Switch back to normal mode by holding the NEXT key.

3.4 Preparing Printing

3.4.1 Adjustment of foil unwind / rewind tension

Insert the print foil according the instruction in the Operation chapter.
The torque of foil unwind-and rewind mandrels are adjustable by means of the red hexagon pin. The foil should run free of wrinkles respectively should not be stretched (especially at drum section) over the whole run from roll to roll.

Increase of torque at unwind/rewind mandrel
Decrease of torque at unwind/rewind mandrel

Foil must not be stretched
Foil must not have wrinkle

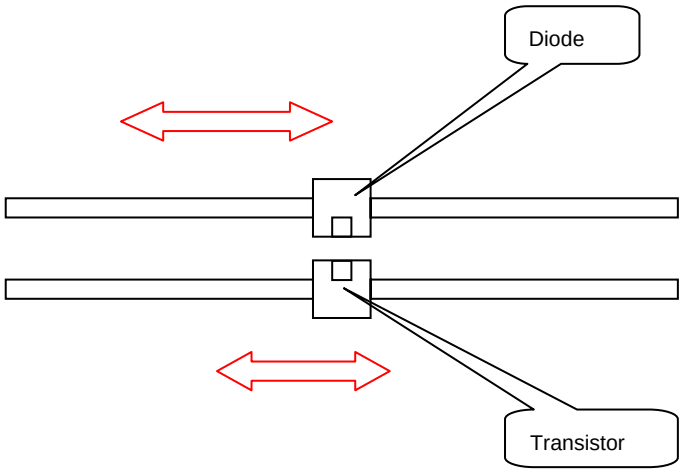
ain factor for
readjustment.

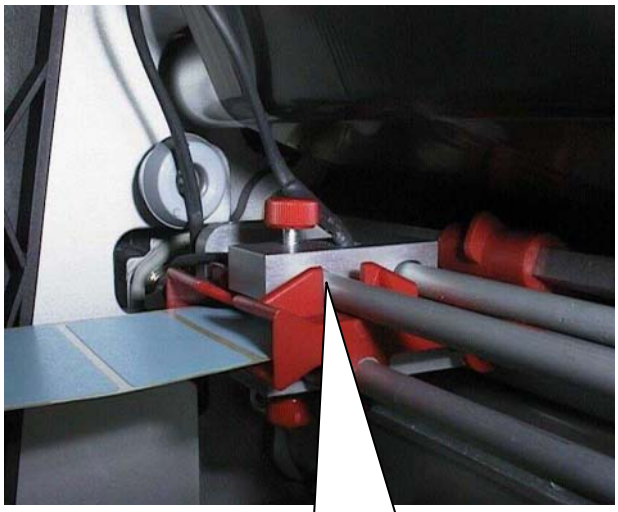
Figure 8 Adjustment of foil rewind

Figure 9 Adjustment foil unwind

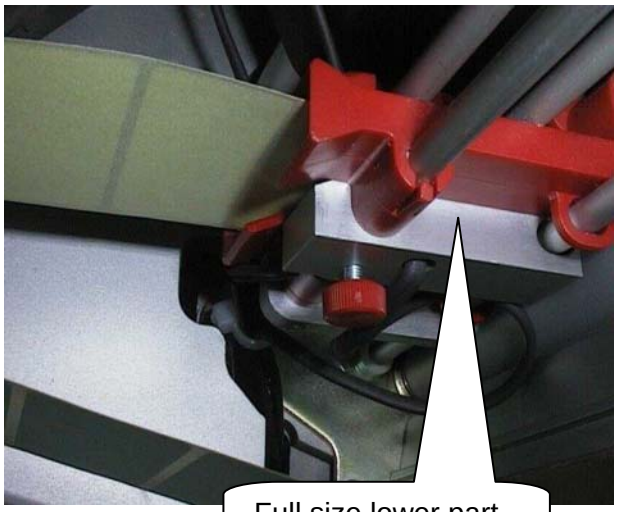
3.4.2 Positioning of full size gap sensor

The unit is equipped with a full size gap sensor. From the minimum label width (25,4 mm) to the maximum the sensor can be moved to the wanted position.
As shown on the pictures below, the sensor can be moved in two parts – the lower side and the upper side. Both should match so the beam can run from the diode to the transistor! If that is not adjusted properly the sensor can not work!





Full size upper part



Full size lower part

3.4.3 Adjust position of print head

The zero line of the print head can be varied from 2 - 13 mm of the left material edge

CAUTION! - Print head must not be plugged off!

- Loose screw at centre of print head axle and set print head to required position.
- Fix screw at print head
- Loosen black plastic disk at foil rewind and unwind mandrel by means of 2 mm allen key
- Adapt them both to position of print head zero line and tighten again

3.4.4 Adjust pressure of print head

Different material width may require different pressure of print head to material in order to optimise the print quality.

- 3 grades are available.
- Rotate the adjustment disk by means of a coin or screwdriver to the required position.

CAUTION! - Select pressure only as high as necessary for the best print quality. Too high pressure may lead to damages at the print head.

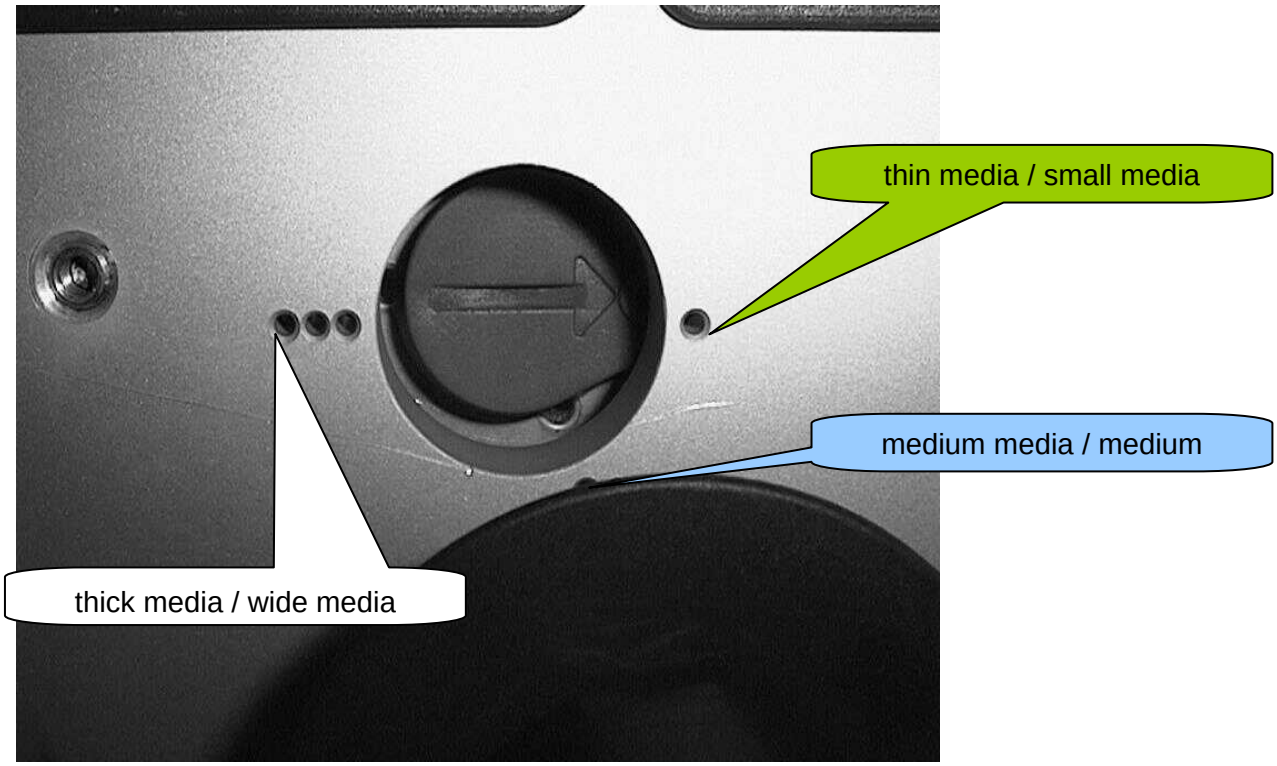


Figure 10 Adjustment print pressure

3.4.5 Exchanging the Printhead

CAUTION! - The print head is an electronic module and highly sensitive to static impacts. For that reason discharge your static potential before going in contact with print head by gripping the base plate of the printer. If print head is readjusted at axle mark its position accordingly.

- Disconnect unit and pull off mains plug.
- Remove material and foil.
- Remove plugs from print head in horizontal direction.

CAUTION! - Remove cable from print head not until 3 minutes from disconnection of unit.

- Loosen the 2 red marked screws at fixation of print head.
- Loosen screw at centre of print head axle - until the print head fixation can be rotated clockwise.
- Let the print head down to print roller and rotate the fixation clockwise.
- Draw print head carefully out of the print module.

CAUTION! - Metal objects must never get in contact with the dot line. Do not touch print head at dot line or connectors.

- For reassembling put the print head on the 180° rotated fixation, positioning is done by means of the 2 upright bolts.

Note: Before mounting notice the resistor value of the print head-noted at print head. Special care is to be taken that print head is supported flush on mounting plate.

- Keep print head and fixation together with fingers, rotate anticlockwise to print roller.
- Re fix print head by means of the 2 red marked screws at fixation bar.
- Put print head on axle to former position and fix screw again.

Note: The screw enters a non visible gap at the axle, which ensures the correct position of the print head. Factory adjustment is flash with the inner black plastic bushing.

- Plug on the 2 connectors to print head.
- When exchanging the print head the value of the head resistor has to be keyed in after restart.

CAUTION! - Entry of an incorrect value may lead to damage of print head!

- Repositioning of print head to print roller
  Production tolerances at print head may cause to move the print head in or versus print direction. This is performed by twisting the little screws at the guiding tooth when fixing screws are loose (tools are supported with printer). **The optimal position can be found by print only !**

4. Operation

CAUTION! - Be careful on operation, fingers, hair, clothes, jewellery, etc. may be caught by and get into rotating axles.

4.1 Insert label material

CAUTION! - Insertion/exchange of foil and material should be carried out only by especially instructed personal.

Before threading the new material, the waste paper should be removed. In the printer the old material can be removed by

- pressing the red lift lever and drawing the material backward.
- pressing the ON/OFFLINE and NEXT key simultaneously the material will be transported backward.

Threading of the label material is shown down below on the threading diagrams for the right-hand and the left-hand version.
Stuck to the side plate of the 720 is the threading diagram, which shows the correct mounting of the label web.

left hand version **right hand version**

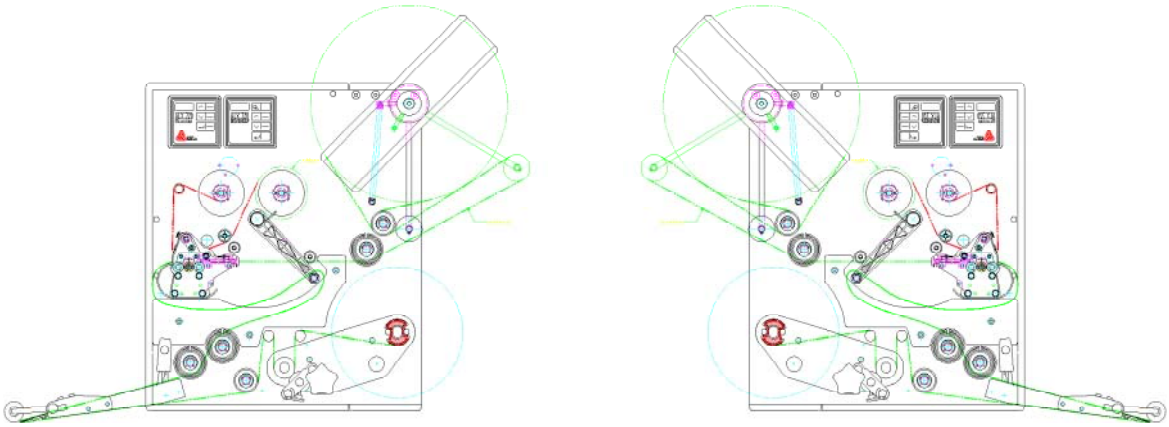
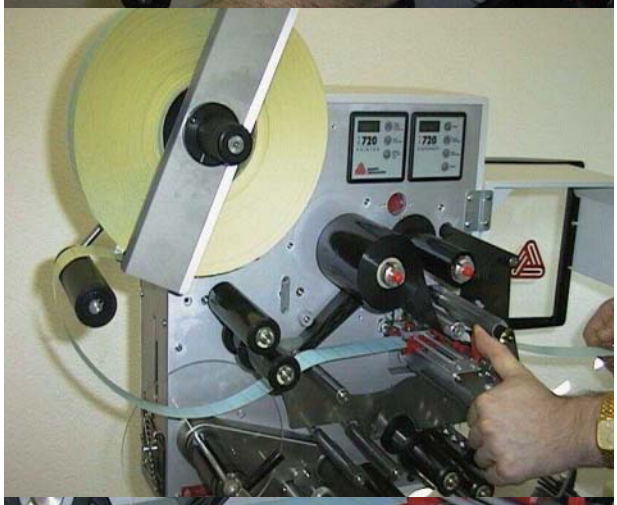


Figure 11 Threading diagram

- Switch printer to OFFLINE mode and lift print head by brief pressing of the FEED key. Open front cover.
- Hang document material in reel holder in a way to ensure unwinding that label in the printer section is on the top. Put outer guide disk onto mandrel. The 2 guide plates keep the label roll reliably in position on the unwind mandrel.
- Guide material around the dancer arm.
- Press the red lift lever at the right, outer end of the print module in order to lift the pressure rolls of the feed roller and insert material below the print head. Adjust both pressure roll units symmetric to material width so that material moves smoothly.
- Labels behind the dispensing edge should be removed. The material brush has to be positioned in a way, that the material is kept tight. From time to time it is recommended to reverse the mounting of the brush while you are loading a new label roll.
- Adjust the pressure roller before the rewind, so that it is right in the middle of the material. Close the pressure roll and turn the roll 2 or 3 times, so that the material is threaded. Check that the material is guided straight.



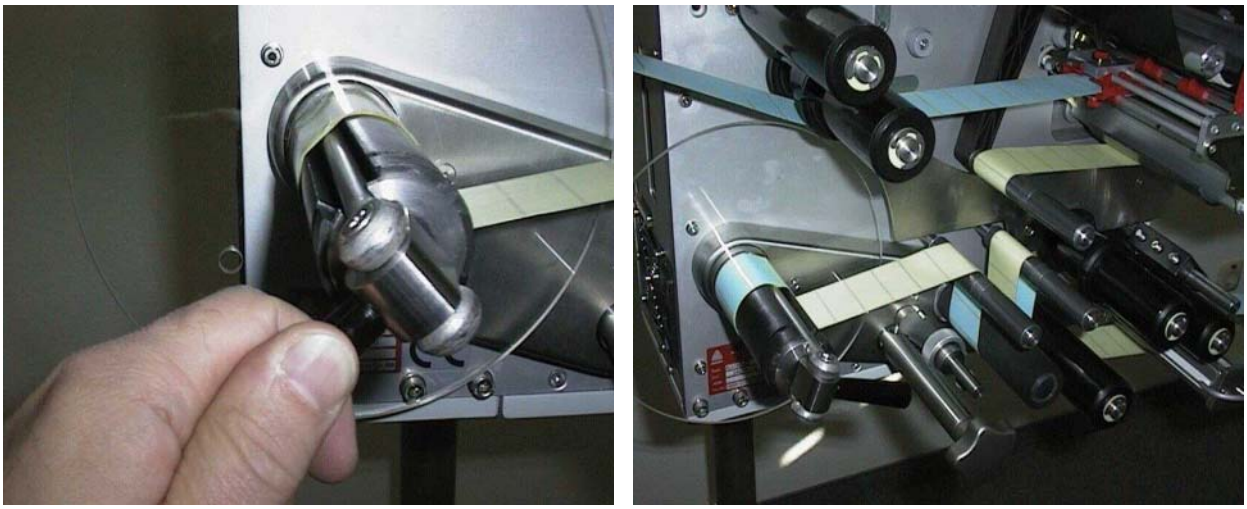


Figure 12 Threading

4.2 Threading of thermal transfer foil

- Attach foil reel onto foil mandrel on the right-hand side for anticlockwise unwinding of foil. Attach empty foil core onto mandrel on left-hand side.
- Insert foil end diagonally from the front under print-head holder and print head holder with open hinge drive mechanism. If foil is changed during a print job, lift print head by short depression of the FEED key.
- Pull foil upward and simultaneously move it towards printer.
- Guide foil around feed roller and attach it to foil core in anticlockwise direction (foil may be folded so that adhesive part at start of foil can be used).

By simultaneous depression of the (ON/OFFLINE)-and (FEED)-keys, material and foil can be advanced until perfect unwinding of foil is warranted.

Note: Sometimes it is helpful to release the head and rotate the head to insert foil into the printer! As well rotating the head means that the wires connected to the head can be to short – then please disconnect the wires – only if the printer is switched OFF ! Do not forget to connect again – and check if the connectors are properly mounted!

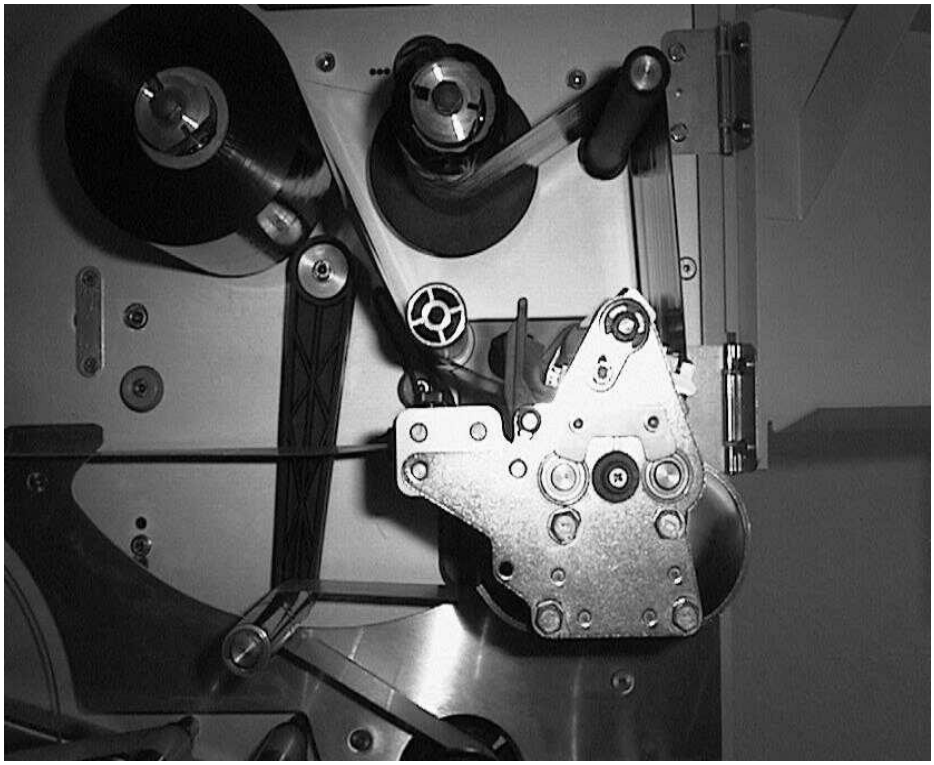


Figure 13 Print mechanism

4.3 Initialise new label material for dispenser

The 720 requires data of the label material in use i.e. label length and opacity of the label and backing material. In most cases those parameters can be scanned during automatic initialisation. This is not always possible.
During initialisation the 720 uses its label sensor to determine where the labels are on the label web and the distance between the leading edge of labels (the label pitch) so that they can be positioned correctly.
There are several modes of initialisation which will be explained later, but in most cases initialisation should be executed in fully automatic mode. For fully automatic initialisation the "LPIT" and "CONT" parameters should be set to "AUTO". Initialisation can be executed by pressing the <FEED key> whenever the message "INIT" is displayed by the machine.

The message "INIT" is displayed in the following cases:
a) if the <FEED> key is pressed and held during power up
b) on return to the standard menu after the "CONT" or "LPIT" parameters have been changed to automatic mode
c) on return to the standard menu after the configuration menu has been used
d) after clearing the error messages E__0 or E__1 in the standard menu. (If the feed key is pressed while another parameter is displayed, the data from the last initialisation is held and the first label edge detected is simply moved to the position defined by the "STOD" parameter)

To start initialisation simply press the <FEED> key when "INIT" is displayed.
The machine will slowly feed the label web while it searches for the gaps between labels and measures the label pitch. When the machine has determined this information it will move the first label edge found during the initialisation process to the position that has been adjusted with the "STOD" parameter. After initialisation has been completed successfully ("ON") is displayed.
Initialisation can only take place in the standard menu; it is not required in the product menu since all label data is already stored in the machine's memory. After a E__0 or E__1 message has been cleared whilst in the product menu the first label edge detected at the next press of the <FEED> key will be moved to the position defined by the "STOD" value stored in the machine's memory.
However, when changing to a new product bank or changing label rolls the FEED key should be pressed once so that the label sensor can find the next leading label edge and move if to the correct dispense position previously defined by the STOD parameter

4.4 Control of dispense unit

4.4.1 Dispenser Menu selection

Turning on the mains switch and at the same time pressing one of the panel keys, you may select between several options:

PANEL KEY & mains switch	**Function**	**Display message**
FEED	Material initialisation	INIT
NEXT FUNCTION	Standard menu	ON
PRIOR FUNCTION	Product menu	PD0n
ENTER	Configuration menu	CODE

Press the key as long as the display shows the version number. One of the above mentioned messages appears in the display. Calling the product menu is only possible, if at least one product bank has been programmed.
If you do not press a panel key while turning on the machine the same menu is active that has been used **before** the machine was switched off.

4.4.2 Missing label function and web breaks

The missing label function stops the label web in the correct position even when a label is missing from the label web. If there are more than 3 missing labels from the web then the machine will stop and give the correct message E_1.
If the label web has broken or come to an end then the machine will no longer be able to find the next leading label edge and so after more than 3 signals from the product sensor the error message E_1 will also be generated.

4.4.3 Display and data input

The operation of the machine is controlled by the operator panel. Data can be displayed and changed. The displays have different meanings:

- Parameter selection:
  In the display a parameter is shown, e.g. POS, STAD, or PD02 (product menu no. 02). By pressing the keys FUNCTION another parameter can be selected. By pressing the key ENTER the data is displayed.

- Data display:
  The display shows the values of the parameters (e.g. 0123) or possible adjustments e.g. (AUTO). The data value is changed by pressing the FUNCTION keys. By pressing the key ENTER the data input is completed and a new parameter is shown.

- Error display:
  If the display shows e.g. E__XX, the 720 (dispenser) has recognised an error. A warning is shown by W_XX. As soon as the error has been corrected, you may erase the message by pressing the key ENTER and you will get back to the status the machine was in before the error was indicated.

Note: Data entered in the standard menu are not stored, if the 720 is switched off. If you need to store data you have to use the extended menu. Please check if it is of help for you using the product menu in your application.

Display	Menu function	Function data value
ON	Labeller ready	
OFF	Label function suspend	
POS	label position on product	Up to ... 999.9 mm
STOD	Label stop position at the dispensing edge	Depends on machine configuration. See description
VELO	Dispensing speed	0.2 .. 30.0 m/min
STAD	delay time before labelling starts	0,1 ... 999,9 ms
BLOW	apply time	0,1 ... 999,9 ms
INIT	Initialisation of label material (CONT and LPIT are measured according to label size)	Appears after E__0, E__1 and Power on + FEED key depressed, or if the values of CONT and LPIT are changed

Dispenser active _____ ON

The dispenser is able to dispense labels.

Dispenser stopped _____ OFF

The dispenser function is stopped. Single labels could be dispensed with the FEED key.

Material initialisation _____ INIT

A new initialisation of material is necessary. Pressing the FEED key will start the initialisation.

Label position _____ POS

The position of the label can be changed by the parameter POS while the machine is in operation. The display is presented in 1/10 mm and means the distance between product sensor and labelling position of the product. The display value 0500 would mean 50.0 mm. By pressing the key PRIOR the value is increased, i.e. the label is put on later. By pressing the key NEXT FUNCTION the value is decreased and the label is put on earlier.

The labelling position is also changed by variation of the product speed. In this case first control you product speed and the dispense speed VELO. Only if both speed matches adjust the position with the POS function.

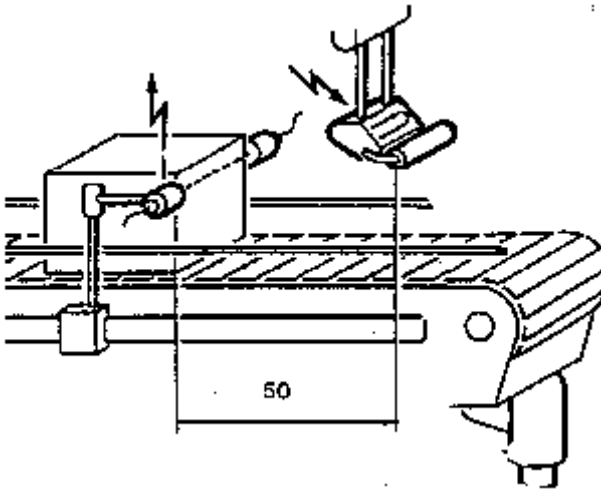


Figure 14 Label position

Stop position _____ STOD

The stopping position (STOD) defines the position where the label stops after it has passed the label sensor. The value represents 1/10 mm. In the example 0760 has to be adjusted by pressing the FUNCTION keys. If an increased value is chosen, the label is advanced further, in case of decreased values the position is closer to the label sensor.

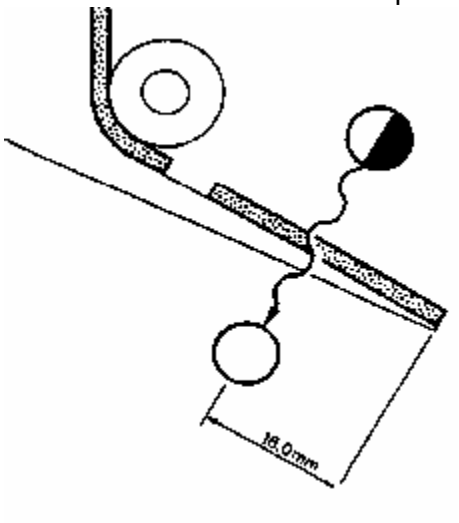


Figure 15 Stop position

Dispense speed _____VELO

The speed value VELO displays the dispensing speed in 0.1 m/min. The product conveyor speed has to be constant to assure accurate labelling. A change of the product speed causes a different position of the label on the product. In case of inaccurate labelling, it should be verified, if the speed of 720 and your product match together. This is done automatically if the optional automatic speed follower (APSF) is installed.

If the 720 is equipped with an applicator, two parameters in the standard menu can be changed. The delay time which specifies the moment when the applicator must put the label onto the product and the blow time - how long the applying of the label should take.

Start delay _____STAD

By the aid of the parameter STAD the period of time between the recognition by the product sensor and the dispensing of the label onto the product is determined. The time units are ms, the time is adjusted by the keys FUNCTION.

Blow on time _____ BLOW

The labelling time BLOW indicates, for how long the applicator should apply the label onto the product. This time is displayed in ms also. BLOW is equivalent to APT2 which is found in the extended menu.

Product menu_____ PD0n

This menu can be used for storing data for different labels and products. 9 different sets of product data can be programmed.
If you want to switch to another product, select the respective product number by pressing NEXT and PRIOR, then press ENTER. Now the new product data are activated.
To change the labelling parameters you can call the extended menu. After leaving this menu your product data will be automatically updated.

720 carries out the labelling of your products completely automatically.
Check now and then:

- if there is still enough labelling material on the unwind roll
- if an error has been displayed and 720 no longer effects labelling
- if the label is placed correctly onto the product. If this is not the case, correct the respective parameter in the standard menu.

Control is even more simple if you use an OD-control, which measures the diameter of the material roll and indicates a warning message W__5 as the label roll diameter gets too small, i.e. there are only a few labels left on the label roll. To the warning output you may connect an alarm indicator, an optical or acoustic signal can be triggered.

4.5 Handling the print operation

4.5.1 New Start of Printer

Connect printer to computer
Switch on machine Display: OFF
Acknowledge by ON/OFFLINE key Display: ON
The printer is ready to receive data via the interface

4.5.2 Restart of Printer

Restart of printer without disconnection of unit by simultaneous operation of all three keys.

CAUTION! - All data stored in the printer will be deleted.

4.5.3 Call of Program Version

The program version is displayed during Reset (pressing all 3 keys) – example 1A41

4.5.4 Modes of operation - OFFLINE

'FEED' and 'NEXT' simultaneously = program or 'ESC'
'FEED' -'NEXT' and ON/Offline simultaneously = Reset

OFFLINE MODE			
Display	**Key**	**Display**	**function**
OFF	ON/OFFLINE	ON	ready to receive
OFF	ON/OFFLINE FEED	<--	slow media and foil movement
OFF	ON/OFFLINE	NEXT	media backwards
OFF	FEED	FEED	feed of media
OFF	FEED NEXT	INFO	enter the parameter menu

Status message			
Display	**Key**	**Display**	**function**
ST__	ON/OFFLINE		press key to cancel the status
ST__	FEED		turn off acoustic signal
ST__	NEXT	OFF	leave status message to OFFLINE mode

4.5.5 Modes of operation - ONLINE

‘FEED’ and ‘NEXT’ simultaneously = program or ‘ESC’
‘FEED’ - ‘NEXT’ and ON/OFFLINE simultaneously = RESET

ONLINE MODE			
Display	**Key**	**Display**	**function**
ON	FEED NEXT	HV__	energy print head changing with FEED - (less) changing with NEXT + (more)
WAIT	not possible	WAIT	image built up
XXXX SNGL			display quantity of printable label including the one in process
XXXX SNGL	ON/OFFLINE	STOP XXXX	the label in process will be finished then the display starts flashing
STOP XXXX	ON/OFFLINE	OFF	change to OFFLINE mode (quantity unchanged)
OFF	ON/OFFLINE	STOP	OFFLINE Mode - printout is stopped
STOP XXXX	FEED	XXXX	print job start again

Parameter menu coming from OFFLINE Modus			
Display	**Key**	**Display**	**function**
OFF	FEED NEXT	INFO	enter parameter menu
INFO	FEED NEXT	OFF	leave parameter menu
INFO	ENTER		Selection
INFO	NEXT	PRTP	Next submenu
PRTP	PRIOR	INFO	Previous submenu

4.5.6 Display messages printer

Printer is switched off _____ **POFF**

Measure: nothing

Unable to format image card _____ **FAIL**

Measure: check write protection, change card

Printer is locked by a mail function _____ **LOCK**

Measure: switch off and on

Data are received _____ **DATA**

Measure: nothing

Printer in stop mode _____ **STOP**

Measure: start printer again

printer is placed in single start mode _____ **SNGL**

Measure: nothing

printer is calculating _____ **WAIT**

Measure: nothing

printer is stopped via HOST _____ **HOST**

Measure: start printer again

Printer is in the process of initialisation _____ **INIT**

Measure: nothing or CODE entry

Printer is waiting for new firmware _____ **.LDR**

Measure: transfer firmware

Error during transfer _____ **.ERR**

Measure: new transfer or new board

Printer in system mode _____ **.SYS**

Measure: nothing

Data base information's are sorted _____ **SORT**

Measure: nothing

Printer switched ON to quick after OFF _____ **----**

Measure: Switch OFF and wait before switch on again 30 seconds

Read barcodes from card _____ **LOAD**

Measure: nothing

4.6 Maintenance

Clean print head and feeding roller with cleaning liquor from paper, adhesive and ink deposits at regular intervals.

4.6.1 Cleaning print head

CAUTION! - The print head is an electronic module and highly sensitive to static impacts. For that reason discharge your static potential before going in contact with the print head by gripping the base plate of the printer. Do not remove plugs from the print head.

- Disconnect unit and pull off the mains plug.
- Remove material and foil.
- Loosen socket screw at centre of print head axle, until the print head can be rotated upwards.

Note: If print head is readjusted at axle mark it's position accordingly.

- Clean print roller with dust-free cloth and cleansing liquor only.

CAUTION! - Never use knives or objects with sharp edges for cleaning. Metal objects must never get in contact with the dot line.

- Put print head to former position and fix screw again.

Note: The screw enters a non visible gap at the axle, which ensure the correct position of the print head. Factory adjustment is flash with the inner black plastic bushing.

CAUTION! - Before switch on the unit, check that both connectors of print head are still plugged on correctly. Reconnect if necessary.

4.6.2 Cleaning of Print Roller

- Disconnect unit and pull off the mains plug.
- Remove material and foil.
- Loosen screw at centre of print head axle - until the print head fixation can be rotated clockwise.

Note: Do not remove plugs form the print head. If print head is readjusted at axle mark its position accordingly.

- After performance of this step, the feed roller as well as the print roller is accessible from above.

- Clean print roller with dust-free cloth and cleansing liquor only.
- Rotate roller stepwise for complete cleaning.

CAUTION! - Never use knives or objects with sharp edges for cleaning.

- The feed roller and the friction rollers are also to be cleaning from time to time. Avoiding any type of contamination in the printing area generally increases performance of the printer and particularly the print head.
- In addition, neat printing results are preferable to poor ones in any case.
- Put print head to former position and fix screw again.

Note: The screw enters a non visible gap at the axle, which ensures the correct position of the print head. Factory adjustment is flash with the inner black plastic bushing.

- Before switch on the unit, check that both connectors of print head are still plugged on correctly. Reconnect if necessary.

4.6.3 Cleaning of foil guiding parts

Adhesive residues are to be removed at regular intervals upon processing of self-adhesive material to ensure perfect print quality. Clean parts with dust-free cloth and cleansing liquor only. Contaminated parts affect the feed of the foil and will reduce the print quality.

4.6.4 Dispenser maintenance

720 can be easily maintained and has only a few wear parts. If you change the material, note if any glue or waste labels are stuck on the rolls or dispensing edge. In this case you have to clean the respective parts. The machine has to be cleaned at least once a week. Glue and waste labels have to be removed from the rollers, the dispensing edge, the material brush, and possibly from the applicator. All rollers have to be cleaned from any grease. We will supply a special cleaning set for this. The material label sensor has to be cleaned from dust regularly. The material brush should be turned around whenever the material is changed. Any glue has to be removed from the brush. If there is a soft roller at the dispensing edge for applying the label to the product, check if the roller is damaged or dirty. Replace it if necessary.
The unwind has to operate in such a way, that the dancer arm does not bounce to its end position. If this is not the case, the friction mechanism has to checked.

If the backing paper is not wound up accurately, the belts have to be tightened.

CAUTION! - Check the electrical connections, especially the mains cable for unreliable connection.

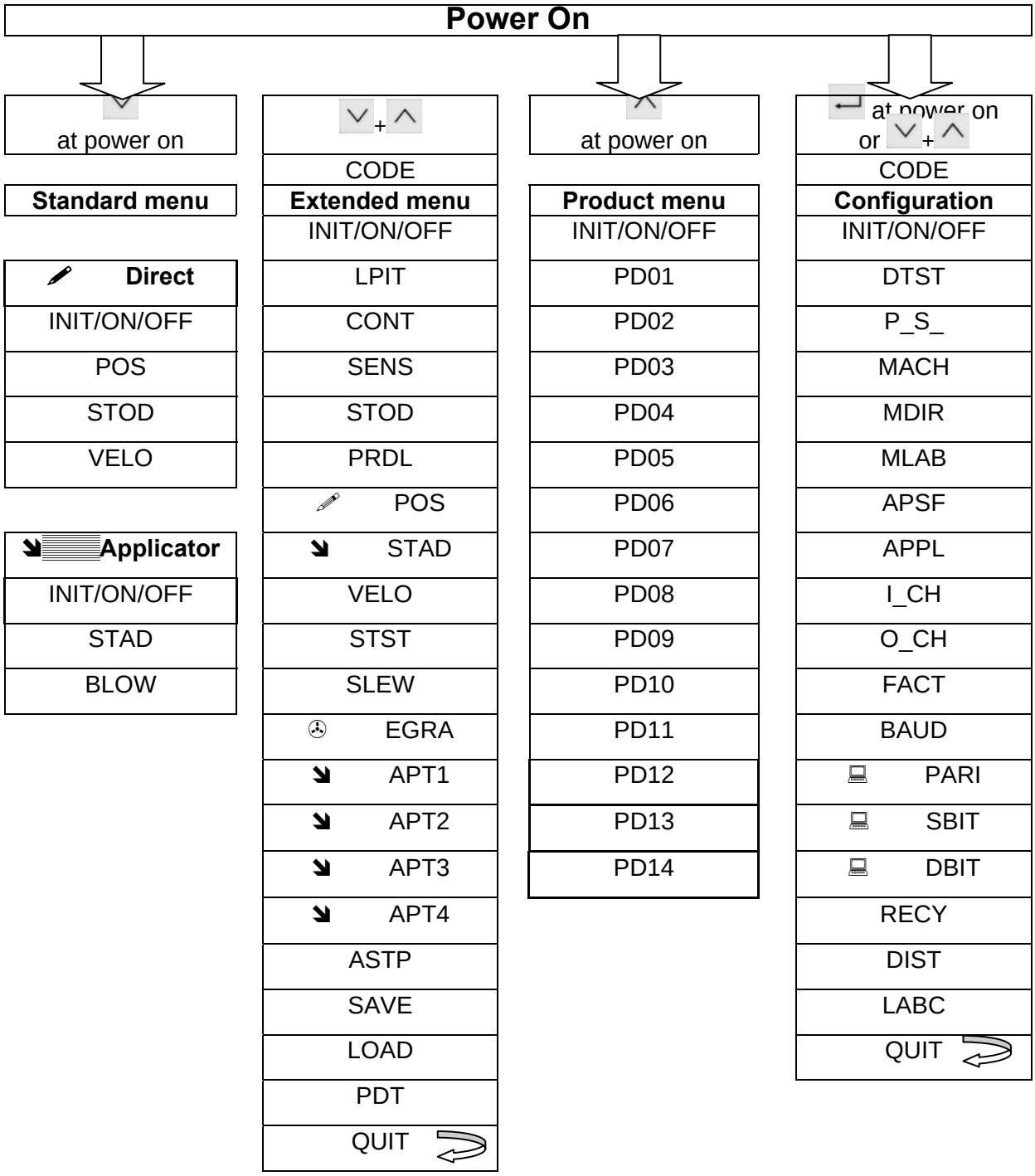
5. Dispenser adjustment

The touch panel keys or the optional interface can change labeller parameters. The last entered parameters are the actual ones the machine works with. Programming via the interface is described in **chapter Serial interface.**

There are 2 levels for parameter adjustments. The first one is for parameter selection. With the keys FUNCTION a parameter is selected. By pressing the keys ENTER the second level can be reached. Pressing the keys FUNCTION can change the parameter values. By pressing ENTER you quit the parameter adjustment and the next menu point is shown. For some functions the change of values is effected immediately, for others when leaving the menu point. Details in the menu functions.

There are 4 different menu structures:

- **Standard menu**
  This menu is used for normal operation. The most important parameters for the production can be changed here. The adjustments are lost after turning off the machine.
- **Extended standard menu**
  This menu offers additional parameters and functions to those in the standard menu. Any adjustments made in the extended menu are stored on quitting the menu and are maintained even if the machine is then turned off.
- **Product menu**
  If data banks are stored in the extended menu, the product menu can be activated. In this menu, programmed data banks only can be selected. Changing parameters in this menu is not possible. When storing data in a new data bank, the current adjustments are saved to the new product data bank. You may change data values of a stored data bank by loading the data from the extended standard menu, modifying them and resaving them in a data bank.
- **Configuration menu**
  In this menu, you configure the machine according to your applications. Additionally you have access to service test functions. This menu is mainly dedicated to service technicians. All current parameter settings are stored on quitting the configuration menu and are maintained if the machine is then turned off.



Direct dispense	Applicator active	APSF on	only if Baud not set to NONE

5.1 Standard menu

Usually this menu is used for labelling. All important parameters can be changed while the machine is running. After turning power on, the standard menu is active, unless the product menu was on before the machine was switched off.
If the product menu is active and you want to use the standard menu, switch off the machine again. Press the key NEXT FUNCTION while switching on the machine and the standard menu is active. In the standard menu you have access to all important parameters for labelling. The number of parameter and its kind depends on how the configuration has been made. Change of parameters is active immediately. Changed values are lost when turning off power. If values need to be stored, the extended standard menu has to be used. All available commands are listed down below.

Display	Function	Values
ON	Normal operation	
OFF	Stop labelling operation	
INIT	Initialisation of label sensor and label pitch detection	After status of E__0 and E__1 only
POS	Position of label on the product	Up to 999.9 mm
STOD	Stop position of label at the dispensing edge	0,0 ..... 200,0 mm
VELO	Labelling speed	0.2 ... 30.0 m/min
STAD	Delay time for labelling with applicator	1 ... 9999 ms
BLOW	apply time	0.1 ... 999.9 ms

Initialisation _____ INIT

The function **INIT** is available only, if required for a new initialisation. Which is the case under the following circumstances:

a) Status error message E__0, the feed key was pressed with pressure roller open
b) Status E__1, while moving the label web no labels have been recognised over a web length of 4 labels.
c) During power on the FEED key was held depressed.
d) CONT or LPIT were changed to automatic mode.

Note: A new initialisation after an E__0 or E__1 message is not absolutely necessary if you sure that the label parameter are all right. Then leave the INIT display with the NEXT key and press only the key FEED to reposition the label at the dispensing edge.

Label position _____POS

Function: The start position **POS** defines when the labelling should take place, after the product has passed the product sensor. Changing the value for POS changes the applied label position on the product.
Only available if no applicator is used.
Range: up to 999.9 mm in steps of 0.1 mm.

Start delay _____STAD

Function: Delay time for the dispensing after the product has passed the product sensor. This value influences the position of the label on the product.
Only available if an applicator is used.
Range: 1 to 9999 ms

Stop position _____ STOD

Function: Stop position of the label once the label edge has reached the dispensing edge. The STOD value defines the actual stop position of the label in steps of 0.1 mm.

With this adjustment the label can be made to stop directly at the dispensing edge. To make the label stop after the dispensing edge the value of STOD should be adjusted accordingly.

- Select the parameter **STOD** by pressing the keys FUNCTION.
- By pressing the key ENTER the data input is activated.
  Range: 0.0 .... 200.0 (mm).

Labelling time_____ BLOW

Function: The labelling time defines how long the applicator should blow the label onto the product.
Only available if an applicator is used. BLOW is identical with APT2
Range: 1 to 9999 ms

Dispensing speed _____VELO

Function: This parameter defines the speed for the label material. Only available if no applicator is used: With an automatic product speed sensor the actual speed is shown.
Range : 0.2 ... 30.0 m/min

5.2 Extended standard menu

The extended standard menu offers additional parameters you may use in your application. On quitting this menu the current parameter settings are stored in memory. Further changes are also written into memory. As long as this menu is active, no labelling is possible. By pressing the key FEED, however, single dispense of labels is possible.

To enter the extended standard menu, proceed as follows:

- Press the NEXT and PRIOR keys simultaneously.
- After the display of CODE entert he password :
  Press 1x PRIOR key
  Press 2x NEXT key
  Press 3x ENTER key

The display shows the first menu point.

Display	**Function**	**Data value**
LPIT	Label pitch	AUTO/5...999 mm
CONT	Label sensor contrast value	AUTO/1...200
SENS	Sensor status	LAB or GAP
STOD	Stop position of label at the dispensing edge	0.0 .... 200.0 (mm)
PRDL	Product length (inhibit of further product- sensor signals)	AUTO, 5 ... 999 mm
POS	Position of label on product	Up to 999.9 mm
STAD	Delay time for start of applicator cycle	1 ... 9999 ms
VELO	Labelling speed	0.2 ... 30 m/min
STST	Check adjusted EGRA value	see text
SLEW	Slew speed	FAST or SLOW
EGRA	Electronic gear ratio adjustment	100 to 500
APT1	Dwell time for applicator	1 ... 7500 ms
APT2	Blow on time for applicator	1 ... 7500 ms

Display	Function	Data value
APT3	Restart delay	0 ... 5000 ms
APT4	Time constant compensation	0 ... 500 ms
ASTP	End of air stream signal	-20 ... 50 mm
PDT	Printer dwell time Printer hold time (is 50% PDT)	OFF - 1000ms
SAVE	Store data in the product data bank	PD01 ... PD09
LOAD	Load data from a product data bank	PD01 ... PD09
QUIT	Leave the extended standard menu	standard menu

Label pitch _____ LPIT

Distance between 2 labels on the label web, measured from leading edge to leading edge. The distance could be set manual or an automatic length measurement is also possible. In case of automatic mode the length is measured with the INIT function. This should be normally done, so label material could be easy changed. Only under special condition the manual mode has to be used.
There are three different modes:

AUTO Select automatic measuring mode
A111 The automatic mode is on and a distance of *111 mm* was measured
M111 The manual mode is selected and a length of *111 mm* was entered.

Range: AUTO or 5 ... 999 mm.

Label contrast _____ CONT

With this function the sensitivity of the standard label sensor could be adjusted. If AUTO is adjusted, the machine scans automatically. The automatic modes doesn't work with transparent labels. In case of another type of sensor (mechanical or capacitive) the setting has to be manual.
There are three different modes:

AUTO Select automatic measuring mode
A111 The automatic mode is on and a contrast of *111* was measured
M111 The manual mode is selected and a contrast of *111* was entered.

Range: AUTO or 1 ... 200.

Sensor status _____SENS

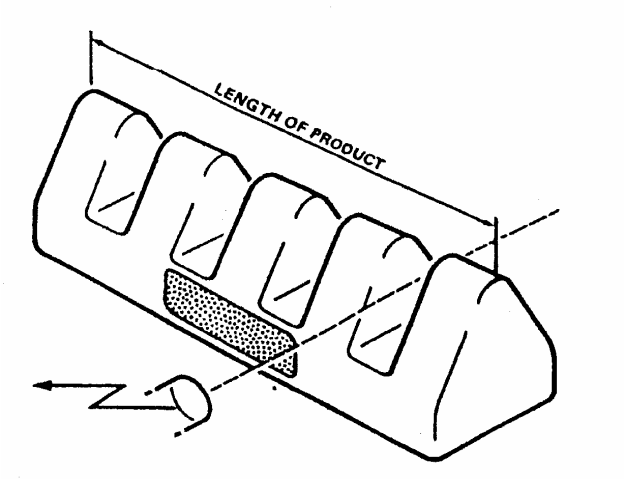
Function: Status of label sensor is indicated, i.e. there is a label in the sensor the abbreviation LAB is displayed and GAP is shown if there is only backing material inside the label sensor. Can be used for all sensor types i.e. mechanical or electronic ones.

Stop position _____ STOD

Function: Stop position of the label at the dispensing edge.
Available: Always
Range: 0.0 .... 200.0 mm

Product length _____PRDL

Function: The product length avoids multi labelling in case of difficult products. Normally it is set to AUTO. This means that the product length is set to the label length.
After the product sensor has detected the edge of the product all signals that might be triggered while the product is passing the product sensor are inhibited. This function can be helpful in cases where the product is transparent or has several detection marks or edges. Such a case is shown below.



The product sensor supplies several signals while the product passes the product sensor. If the PRDL is not adjusted according to the dimension of the actual product the warning W_0 may be given of false multiple product detection signals. The defined product length suppresses all signals after the first product sensor signal has been received.
By pressing the keys FUNCTION the parameter **PRDL** is selected. The data input is selected by pressing the key ENTER.
If an applicator is fitted to the labeller, the product length is not defined as a distance but as the **time** that the product needs to pass the product sensor. The **time** is adjustable between 5 and 9999 ms.
Available: Always
Range: AUTO or 5 - 999 mm

Label position _____POS

Function: Position of label on the product.
Only available if no applicator is used.
Range: up to 999.9 mm in steps of 0.1 mm.

Start delay STAD

Function: Delay time for the dispensing by means of an applicator after the product has passed the product sensor. This value influences the position of the label on the product.
Only available if applicator is used.
Range: 1 to 9999 ms

Dispensing speed VELO

Function: The labelling speed may be adjusted with the parameter **VELO.** Values between 0.2 and 30.0 m/min are possible. The speed has to be adjusted so that it matches the product speed.
When an applicator is fitted to the machine, this parameter defines how fast the label will be dispensed on to the applicator.

EGRA value check STST

Use this function to adjust the EGRA value. If the drive-roller speed is higher than that of the conveyor then increase the EGRA value, if it is lower decrease the EGRA value so that the conveyor speed and drive-roller speed match.

Slew speed SLEW

Function: For some situations the labeller can run with a different, higher speed. This occurs during compensation of a missing label on the web, positioning the label at the dispensing edge during initialisation or after pressing the feed button if the APSF-mode is selected. The resulting speed depends on the selection (FAST or SLOW) and the APSF-mode.

SLEW setting	FAST	SLOW
APSF off	Max speed	VELO
APSF on	Max speed	12 m/min

Electronic gear ratio adjustment EGRA

The parameter EGRA appears in the extended menu only after the APSF function has been switched on.
The range of the EGRA parameter is 100 to 500, representing from 1 to 5 encoder pulses per millimetre of conveyor movement. The full EGRA range can be used up to 30 m/min conveyor speed.
With an applicator there is no realistic limit to the conveyor speed and at very high-speeds an EGRA value at the lower end of the range should be used.

Dwell time APT1

Function: Only used when an EP- applicator is necessary. It defines for how long the pneumatic cylinder is switched on.
Available only with applicator.
Range: 1 ... 7500 ms

Blow on time _____ APT2

Function: Only used when an applicator is necessary. It defines for how long the label is blown onto the product.
Available only with applicator.
Range: 1 ... 7500 ms

Restart delay _____ APT3

Function: This parameter defines the time for a next label dispense after the applicator cycling is completed.
Available only with applicator.
Range: 0 ... 5000 ms

Time constant compensation _____ APT4

Used to control the labelling position when using an applicator in conjunction with APSF.
The parameter APT4 is set to the time that the label takes to reach the product from the start of the applicator cycle. For blow applicators this will probably be less than 25 ms, for EP (air-cylinder) applicators the time will be much more - possible 60 ms to 100 ms depending on the length of the air cylinder.
To calculate the correct value proceed as follows:

Set APT4 to 1. Run the conveyor at a fairly low speed such as 10 m/min and note the label position on the product. Now run the conveyor at a much higher speed such as 25 m/min and note how far the label position has shifted back.

Use the following formula to calculate the correct value for APT4...

(LABEL SHIFT (mm) x 60) / (Vhigh - Vlow) = APT4

Vhigh represents the higher conveyor speed used (in m/min)
Vlow represents the lower conveyor speed used (in m/min)

eg. If the shift is 3mm and the conveyor speeds 10 m/min and 25 m/min are used the correct value for APT4 is:

(3 x 60) / (25 - 10) = 180 / 15 = 12

The calculated value should then be tested by running the conveyor at a high and a low speed and checking that the placement position does not change. If the label position moves back slightly at higher speed then increase APT4 a little, if it moves forward at higher speed then decrease APT4 a little.

Note: The EGRA parameter must be set correctly as well as the APT4 parameter for correct label positioning on the product.

End of air stream signal _____ ASTP

This parameter determines how long the air stream signal will remain active after the label dispense has finished. Valid in all modes (direct dispense, applicator, APSF and fixed-speed).

Printer dwell time _____ PDT

This determines the dwell time of the stamp-printer. A new dispense is prevented after PDT expires for a time equal to 50% of PDT.

Save parameter in data bank _____ SAVE

Function: After selection this function you can save the current parameter setting to a data bank.
Always available.

Range:	NEW1 .. NE15	Create a new data bank
	PD01 ... PD15	Overwrite existing data bank
	EXIT	Leave function without modification

Load data bank _____ LOAD

Function: After selection this function you may load a predefined parameter setting.
Always available.

Range:	PD01 ... PD15	Load a defined data bank
	EXIT	Leave function without modification

Leave Menu finishing _____ QUIT

Function: If this function is selected, you get back to the standard menu
Always available.

Note: Modified parameter values are only stored if the menu is left by using the QUIT function. If the power is switched off before leaving the menu by quit all modifications are lost.

5.3 Configuration menu

Adjustments in the configuration menu are necessary during installation of the machine only. In the **configuration menu**, the required optional functions can be selected. Some service support functions in the configuration menu will be useful for the service staff.

Possible adjustments:

- Recognition of the product at the leading or trailing edge
- Left or right hand version of labeller
- Machine type
- direct dispensing or several type of applicators
- Parameters for the interface

Possible tests:

- In/output test
- Test run without labelling

The function Factory initialisation resets all parameters to default values.

Calling the configuration menu

There are two ways to call the configuration menu:

- Press the key ENTER and switching on power at the same time. The display shows 'CODE'.
- Press the keys NEXT and PRIOR at the same time when a parameter function is displayed. The display shows 'CODE'.

The password has to be entered by pressing the following keys:

*	1 time	PRIOR FUNCTION
*	3 times	NEXT FUNCTION
*	2 time	ENTER
*	3 times	NEXT FUNCTION

When the password is entered correctly, the display shows `DTST`. After pressing PRIOR or NEXT the next menu, point will be shown. If a wrong password was entered, you go back to the previous menu.

5.4 Handling the menu

The menu structure is shown in the following table. By means of the key PRIOR you switch to the prior function, and with the key NEXT to the next following function in the menu.
If you press the key ENTER the current parameter value of a function is shown. The current parameter value can be changed with the keys PRIOR FUNCTION or NEXT FUNCTION. Values are stored by pressing the key ENTER.

Display	Function of the parameter	Possible data entry
DTST	Test run without labels	
P_S_	Product sensor detects at leading or trailing edge of product	LEDG, TEDG
MACH	Machine type	230, 720, 330, 430
MDIR	Motor running direction for left or right hand	<---- ---->
MLAB	Handling of missing label	NONE, WARN, ERR1, ERR2, ERR3
APSF	Automatic product speed follower	YES, NO
APPL	Direct dispense mode, or applicators	DIR, ASA, EP, RVEP
I_CH	Test of inputs	
O_CH	Test of outputs	
FACT	Reset of all parameters to default values	YES, NO
BAUD	Baudrate of the interface	NONE, 300 to 192%
PARI	Parity bit	NO, 0PRT, ODD, EVEN
SBIT	Number of Stop bits	1 bit, 2 bit
DBIT	Number of data bits	7 bit, 8 bit
RECY	Recycle (simulates max labels/min)	see text
DIST	Distance label sensor to dispensing edge	10 ... 999 mm
LABC	Number of dispensed labels	see text
QUIT	Return to extended standard menu	

5.5 Menu functions

The menu functions are explained in detail here.

Permanent test _____ DTST

The permanent test makes a test run without using labels. In the display the numbers of dispense cycles is shown (see description LABC). Immediately after starting the function, the machine runs in a self-test. The test run works with all adjusted parameters. The test can be stopped by pressing the key ENTER.

Polarity of the product sensor _____ P_S_

The machine requires a start signal for each product to be labelled. After the start delay (STAD) the labelling starts. The signal is usually created by a light sensor at the conveyor. A PLC can also supply this signal. The light sensor supplies a signal when the light beam is interrupted by the product. By means of the function **P_S_** it will be selected whether the leading edge or the trailing edge of the product should trigger the signal.
Usually the trailing edge of a product is used. Reasons for detecting the leading edge can be:
- shape of product (your should avoid detecting a radius or a declined edge)

In case of using other than the standard product sensor's, the meaning of the display can be reversed. The adjustment you need you may change with the keys NEXT or PRIOR.

Factory adjustment: **LEDG**

Machine type _____ MACH

The software is identical for several different machines. Choice the correct type.

Factory setting: The last setting remains after a factory reset.

Dispensing direction _____ MDIR

The machine is available in a right and left-hand version. In the right hand version the product transport is from left to right when you look to the front of the machine. The adjustment is done in the factory and should **not be changed**.

Factory setting: The last setting remains after a factory reset.

Handling of missing label _____ MLAB

There are several condition the dispenser is not able to dispense a product:

- the distance between products is too close
- an additional printer is not fast enough
- the loop in the ALX720 is empty (end of job, printer error)

With this function, you can decide how to react:

NONE	Do nothing. The unlabeled product will be detected later in the line.
WARN	Set the warning output and displays W__0. The production continued.
ERR1	Set the error output to stop the production line immediately and display E_10.
ERR2	The first unlabeled product generates the warning. Two unlabeled products in a sequence set the error.
ERR3	The error condition will be set at 3 unlabeled products.

Automatic product speed follower _____ APSF

Under parameter APSF the automatic product speed follower function can be activated (ON / OFF). The APSF sensor is fitted to the conveyor and supplies signals that represent the speed of the conveyor. The installation of the sensor and the adjustment of the parameter have been carried out according to your application and should not be changed.
The compensation steps for the current conveyor speed are constantly recalculated rather than just when the product-sensor is triggered. This means that a change in conveyor speed between the time that the product is detected and the time it reached the dispense position has no effect on labelling placement accuracy.
There is no optimum EGRA setting. The compensation steps are calculated using the current EGRA setting rather than using fixed compensation step values for a predetermined EGRA setting and so any EGRA value works just as well.
At slow speeds the label dispense speed matches the conveyor speed exactly regardless of the EGRA setting. For instance if the dispenser needs to make 1.236 steps per encoder pulse then at the first four encoder pulses the dispenser will make one step but will then have fallen 4x0.236=0.944 steps behind. On the fifth encoder pulse the dispenser will make two steps and so be (5x0.236)-1=0.18 steps behind. The dispenser will always be less than one step behind. The dispenser thus always dispenses the correct amount of label in regard to the product movement even when the conveyor is starting from rest or coming to rest.

Type of applicator _____ APPL

In most cases, the label is dispensed directly onto the product. If this is not possible, an applicator has to be used. We offer a number of different applicators. In this function, the installed applicator has to be defined. You may select the applicator type you have ordered for your application (display shows 'ASA`,`EP`, RVEP or another applicator). In case of direct dispensing the function direct dispense has to be chosen:
Display shows 'DIR'.
The adjustment is done in the factory and should not be changed.

RVEP (ReVerse EP) operates as an EP applicator except that once the label has been dispensed onto the applicator the applicator cylinder is extended to wait for the next product to arrive. This provides more accurate labelling than with EP applicators because variation in the time it takes for the cylinder to extend does not affect the labelling position.

Additional functions in the standard menu
Depending on which parameter has been defined under APPL different menu functions are shown in the standard menu. If an applicator is used additional times BLOW and STAD for controlling the applicator cycling are available.

Input and sensor check_____ I_CH

To display the status of sensor's and inputs information are grouped in 3 blocks you can select by pressing the NEXT or PRIOR keys. The character for the inactive state is different to identify the various blocks.

Block 1 (inactive = 0)
- N = Power fail detection (only can case of malfunction)
- P = Product sensor active
- A = Signal from APSF sensor
- R = Ready input stepper motor control

Block 2 (inactive = -)
- I = Inhibit input active
- L = Unused input (Loop control on ALX 720)
- H = Applicator home switch active
- E = Applicator end switch active
- Z = Horizontal home switch

Block 3 (inactive = .)
- S = pressure switch activated
- J = Jumper 3 closed
- O = OD control material active
- M = Label sensor on material
- G = Label sensor on gap

For a correct label sensor information CONT has to be adjusted before. Leave the function by pressing key ENTER.

Output check _____ O_CH

With the NEXT and PRIOR keys you can select the output you will switch on for testing. Leave the function by pressing key ENTER.
On selecting the O_CH function the display shows "1" and the first output is active. Using the up-arrow and down-arrow keys the user can select any one of outputs 1 to 8. Only one output is on at a time so that the user can easily see if he has any shorted connections (any output that is being turned on by another part of the program such as an error or ODC output will stay on until the error or ODC input is cleared).

1 = terminal 15 = BLOWON
2 = terminal 16 = AIRSTREAM
3 = terminal 17 = CYLINDER
4 = terminal 18 = PRINT_OUT
5 = terminal 19 = WARNING
6 = terminal 20 = ERROR

7 = terminal 31 = READY
8 = terminal 32 = ODC_OUT / HORI_CYL

Adjustment resetting _____ FACT

This menu point sets all parameters back to the factory values. All parameters will be reset, so please note all your adjustments before. When you call this function the display shows 'NO`. After you have left by pressing the key ENTER there is no change.
When you change with the key NEXT to YES and press ENTER all parameters are reset to default values.
Note: This function also clears all product banks.

Interface baud rate _____ BAUD

With this function the baud rate of the interface will be adjusted. This is an option of the machine. If you do not have this option, the parameter has to be set to 'NONE` to protect the interface and to avoid errors. The following baud rates are adjustable: 150, 300, 600, 2400, 4800, 9600 and 19200 baud. When calling the function FACT this parameter will be set to `NONE`. When the machine is delivered with the interface the baud rate is set to 9600. Select your baud rate by pressing the key NEXT or PRIOR . With the key ENTER the adjustment is stored.
Factory adjustment: NONE

Parity bit _____ PARI

The function is only visible if a baudrate is selected. The parity bit is necessary to check the data transfer. In case of wrong data transfer an error message will be given. The adjustment of both machines has to be identical. Usually the transfer is made without parity bit.
Possible adjustments:

'NO`: Not sending or receiving a parity bit
`EVEN`: produce a parity bit so that an equal number of `1` signals is created
`ODD`: produce a parity bit so that an odd number of '1' signals is created.
`0PRT`: The parity bit is always 0

By pressing the key NEXT or PRIOR the adjustment is selected and by pressing the key ENTER the function is finished.
Factory adjustment: NO

Number of stop bits _____ SBIT

The function is only visible if a baudrate is selected. This parameter defines the number of stop bits. By pressing the key function you can select between `1BIT` or `2BIT`. By pressing the key ENTER this function will be left.
Factory adjustment: 1BIT

Number of data bits _____ DBIT

The function is only visible if a baudrate is selected. With this function you can select between 7 or 8 data bit protocols.
Factory adjustment: 8BIT

Recycle (simulates max labels/min) _____ RECY

The Auto-recycle function, is used to determine the maximum possible cycle rate with the current parameter settings.
It will cycle through applicator cycles automatically by internally generating a product-start the instant a cycle has been completed and displays the average cycle rate per minute in the display. It also operates with no applicator selected by dispensing labels at the maximum possible rate. The maximum labelling rate for different values of PDT can be determined using the RECY function without having to physically connect the printer.

Distance sensor to dispensing edge _____ DIST

This function defines the distance between the material label sensor and the dispensing edge. This value is shown in steps of 0.1 mm (e.g. 0456 means 45.6 mm). The measured value can be adjusted by pressing the key FUNCTION.
If the DIST value has been adjusted correctly the first leading label edge detected at initialisation will be moved exactly to the dispensing edge, as long as STOD is set to 0.0 (mm). This parameter is important for the missing label compensation. If it is not correctly adjusted a missing label on the material roll, will not be compensated correctly and the product will not be labelled.
Value range: 10.0 .... 999.9 mm

Label counter _____ LABC

Each dispensed label increases the counter by 1. The capacity of the counter is for 999 999 999. The total number can be seen in 3 sections, press the keys FUNCTION as described down below:

Mnnn Knnn .nnn

- where M represents millions
- K represents thousands
- .represents units

On entering the "LABC" parameter the units are displayed. By using the arrow keys can then be used to change between the millions, thousands and units displays.
By pressing NEXT and PRIOR at the same time the counter is set to 0. By pressing the key ENTER the function will be left.

Leave Menu finishing _____ QUIT

Function: If this function is selected, you get back to the standard menu

Note: Modified parameter values are only stored if the menu is left by using the QUIT function. If the power is switched off before leaving the menu by quit all modifications are lost**.**

5.6 Product data bank

If parameters have to be changed because of different products and labels, the product menu can be used. The machine offers a data bank in which 14 sets of data can be stored.

If you want to switch to a particular product, select one of the product numbers by pressing NEXT or PRIOR and confirm with ENTER .The new parameters are valid now.

After switching to a new product bank the machine assumes the label roll has been changed or that a parameter such as STOD is different and so requires an initialisation of the label position at the dispensing edge. This is done by pressing the FEED key after loading a new product bank at which time the machine will move the first detected label edge to the dispense position.

Note: If the FEED key is not pressed after loading a new product bank the first detected label edge will be moved to the dispense position at the first signal from the product sensor!

Note: The function FACT available in the configuration menu clears all the product banks.

6. Printer adjustment

The following page will show you how the structure of the menu is organised! During the OFFLINE mode you adjust different values of the printer or activate and deactivate options.

Shown are only the main points of the menu – the lower points you will find easy to understand and operate. Only 4 digits gives us only a limited quantity of possibilities of names please understand if sometimes the readability is limited.

6.1 Printer parameter menu

OFFLINE

↓ + ↑

INFO ↵	**PRTP** ↵	**IFAC** ↵	**SYSP** ↵	**JCLR**	**OTHR** ↵
				SCLR	
STA0	PSPD	PORT	EMUL		DOWN
STA1	MLEN	SPOL	NACH		LCLR
STA2	MWID	BMOD	PUNS		MCHK
STA3	PUNO	<20H	FMOD		SCHK
DOT1	BCHI	BAUD	L-R		PCHK
DOT2	UPCA	PARI	SW01		FACT
	XPOS	DBIT	SW02		SERV
	YPOS	SBIT	OMOD		TEST
	SSPD	HAND	CODE		SENS
	GAP	PRID	HRES		NULL
			HEAT		HADJ
			HVOF		
			CLCK		
			LREP		
			COPY		
			CSET		
			MEND		

Password protected

6.2 INFO: Info printouts

In this submenu status prints for tests and output the machine condition could be done. Printout is possible after initialisation of light barrier only. Preferably 200 mm long material of a width of approx. 100 mm is to be used.

Status Report: Adjustment of parameters _____ STA0

A printout can be made to obtain a survey on parameter adjustments specific to the user.

Logo Buffer, Memory Report _____ STA1

A printout of the logo addresses used can be made for logo buffer management. The unused storage capacity for logo data storage depends on the plug in card. If no such card is plugged in, the unused internal storage capacity of the printer is made available for logo storage.

Library : Fonts, barcodes and lines _____ STA2

Print samples of all types installed.

Service Report _____ STA3

Test printout for check of feed roller, print head, and service parameters.
Material transparency is represented graphically. Subsequently insert material and depress ‘FEED’ key light barrier is initialised.

Print test used for punched media _____ DOT1

Special pattern to show broken dots. The endless test finish by pressing the ENTER key.

Print test for endless media _____ DOT2

Special pattern to show broken dots. The endless test finish by pressing the ENTER key.

6.3 PRTP: Print parameter adjustments

In this submenu the adjustment of the print function is possible.

Print Speed _____ PSPD

The printing speed (material feed) can be adapted to the foil/material combination used to optimise contrast intensity and imprint density of the print.

„PS.4“ 4 inches/second; ditto for 5-12 inches per second.

Material Length _____ MLEN

Material length (gap distance - measured from the beginning of one label to the beginning of the next one) can be altered in mm-steps. The recognised gap position corresponds to the beginning of the label.
If sending a label format the value will be overwritten by the corresponding Easy Plug command.

„L..5“ Minimum length 5 mm
„LXXX“ Maximum length 330 mm (depending on print head width and spooler configuration, see also printout:(STAO)

Material Width _____ MWID

Position of the left edge can be altered in mm-steps if printer is in the line printer mode.
If sending a label format the value will be overwritten by the corresponding Easy Plug command.
„W.25“ Minimum width 25 mm
„WXXX“ Maximum width 107 mm

GAP Offset _____ PUNO

The 0-position can be determined offset from the recognised gap position in mm-steps.
If sending a label format the value will be overwritten by the corresponding Easy Plug command.
„.-15“ Maximum (negative) offset in feed direction
„+300“ Minimum (positive) offset against feed direction

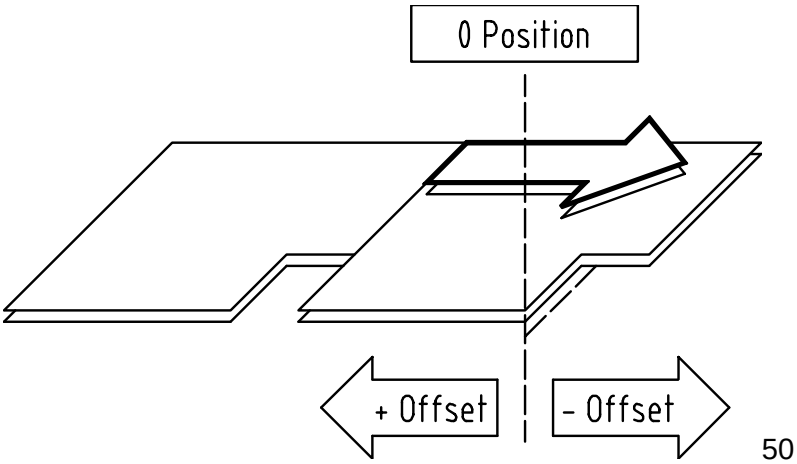


Figure 16 Gap offset

Barcode height_____ BCHI

The barcode height can be multiplied with *1 - *10 mm (factor BCHI). The effective barcode height is calculated on the basis of the value defined in the label layout (mask) multiplied by the enlargement factor BCHI.

Graduation of steps: 1mm

„B..1“ Smallest enlargement factor
„B.10“ Greatest enlargement factor

Example:
„BCHI“ factor is „3“.
The EASY PLUG command in the label layout is barcode height /4/.
Result: The barcode is printed in a height of (4 + 1)* 3 = 15 mm.

UPC human readable line position _____ UPCA

The position of the human readable line can be adjusted

“STD” First and last digit using the UPCA or the first digit of the UPCE are moved to the middle of code
“SPEC” All characters of the human readable line are in one line

Print Offset on X – Axis _____ XPOS

The mask zero is shifted in relation to the label edge on the X-axis, i.e. transversally to the material.
Steps: = 0,25mm
„XP.8"= +2mm Maximum (negative) offset from label edge
„XP-8" **= - 2mm** Maximum (positive) offset towards label edge

Print Offset in Y – Axis _____ YPOS

The mask zero is shifted in relation to the punch position on the Y-axis, i.e. in feed direction.
Steps: = 0,25 mm

„YP.8" **= + 2mm** Maximum (negative) offset in feed direction
„YP-8" **= - 2mm** Maximum (positive) offset against feed direction

Feeding Speed without Print _____SSPD

The feeding speed can be increased between printing cycles, by which the total printing time can be reduced particularly with long labels having small areas to be printed.

„SS.4"4inches/second; same for 5- 12 inches per second

Note: For print applications requiring longer computation steps (e.g. consecutive numbering) the feeding speed is not to be selected too high to avoid heavy slowing down to „0" and re-acceleration to the printing speed.

When changing the print speed (PSPD) the slew speed (SSPD) will be set automatically identical to the print speed (PSPD). If a different slew speed is required it has to be adjusted new.

Mode of gap recognition _____GAP

AUTO: Default adjustment, for all materials with a difference in light transmittance of more than 2 digits at gap and label (see description of sensor check).

MAN: The range of automatically measured values for gap recognition may be defined specific to a label material. This feature helps to feed correctly materials with high contrast pre print areas which would be detected as false gaps. This contrast areas should be measured before adjustment by means of the sensor check, the corresponding adjustment value is identical or less than the value measured at the effective gap.

Example: Self adhesive material with a black bar across the label

Measured values:	Backing paper	30
	Backing paper + label:	60
	Backing paper + label + black bar:	190
Value to be adjusted:	60, i.e. all measured values higher than 60 will be ignored, as well the black bar (= 190)	

„Auto“ at materials with one contrast area = gap within a label
„MAN“ + **„F x“** at material with several, different contrast areas

6.4 IFAC: Interface Parameter

In this submenu the settings for the communication ports are done.

Type of interface _____ PORT

For normal communication the RS232 connection is used. Only downloading a new program has to be done via the centronics interface.
„RS23“ Serial interface (V24/DB25, RS232)
„CENT“ Parallel interface (Centronics)

Selection of Spooler Size _____SPOL

The spooler size can be selected in accordance with requirements specific to the customer. It influences the maximum print format if no RAM card is used for storage extension.
„8KB“ 8kbyte, same for 16,32,64 KB

CAUTION! - All data stored in the printer buffer are cleared!

Spooler Mode _____ BMOD

By this mode of operation execution of single print series (the interface is only ready for reception after printout of the desired label quantity) in accordance with the requirements specific to the customer can be defined, or whether printing data can be received from the spooler during printing of multiple series.
„BOF“ Single print series mode
„BON“ Multiple print series mode

Filter for characters <20H _____ <20H

YES Filter enabled. Characters with a hex number below 20H will be filtered out of the data stream.

NO Filter disabled. Characters with a hex number below 20H are treated as normal characters.

Transmission Speed _____ BAUD

The transmission speed on the serial line has to be the same selection like on the host.
„300“ 300,same for 600,1200,2400,4800,9600,19200 Baud or 38400= “384”

Parity _____ PARI

„ODD“Odd parity
„EVEN“ Even parity
„NONE No test bit
„CLRP“ Test bit always „O“

Data bit _____ DBIT

Definition of this parameter is possible for both the serial and parallel interface.

„7BIT“7 Data bits
„8BIT“8 Data bits

Stop Bit _____ SBIT

„1BIT“1 Stop bits
„2BIT“2 Stop bits

Data Synchronisation (Handshake) _____ HAND

„RTS“ Hardware handshake
„XON“Software handshake

Printer identification number _____ PRID

„IDxx“ Identification number between 0 - 31

6.5 SYSP: System Parameter

Here some general settings are defined.

Print Interpreter _____ EMUL

The interpreter determines the „language“ in which the printer receives and processes data.
In Easy-Plug, the commands transmitted are printed as label text.
In line printer and hex dump, the commands are printed in the form of a list by character set „12“.

Note: EASY PLUG commands not yet processed are cancelled upon setting to one of the two other interpreters!

„EASY“	Easy Plug interpreter
„LPRN“	Line printer (similar to line printer)
„HEXD“	Printout in hexadecimal notation

National Character Set NACH

In accordance with the selected character set, the individual decimal and hexadecimal values are replaced as shown in the table.

decimal	35	36	64	91	92	93	94	96	123	124	125	126	127
ASCII	#	$	@	[	\	]	^	`	{	|	}	~	> 127
USA	#	$	@	[	\	]	^	`	{	|	}	~	(Blank)
UK	£	$	@	[	\	]	^	`	{	|	}	≡	(Blank)
FRAN	£	$	à	°	ç	§	^	`	é	ù	è	~	(Blank)
GER	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß	(Blank)
ITAL	≥	$	§	°	ç	é	^	ù	à	ò	è	`	(Blank)
SWED	#	■	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	(Blank)
SPAI	#	$	@	¡	Ñ	Ç	^	`	¿	ñ	ç	~	(Blank)
NORW	#	$	@	Æ	¥	Å	^	`	æ	¢	å	~	(Blank)
SPEZ	ƒ	¢	(Blank)	(Blank)	¼	½	(Blank)	(Blank)	«	■	»	±	(Blank)
IBM	#	$	@	[	\	]	^	`	{	|	}	~	printable

224 / 256 Character Set

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00																¤
10						§										
20		!	″	#	$	%	&	’	(	)	*	+	,	-	.	/
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
80	€	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Pt	*ƒ*
A0	á	í	ó	ú	ñ	Ñ	ª	º	¿			½	¼	¡	«	»
B0		▒			_									¢	¥	
C0																
D0																
E0		ß												Ø		
F0		±							º	ø					■	

Sensitivity of the label sensor _____ PUNS

Note: High sensitivity adjustment may cause the recognition of gaps which are physically not exciting. A too high sensitivity may lead to recognition of gaps which are effectively not available. Those could be contrasts at pre-printed areas, changing material thickness or perforations.

„SP.1“High sensitivity for narrow gaps or perforation
„SP.8“Low sensitivity for clearly recognisable gaps

Foil Auto-Economy, Thermo/Thermo-Transfer Print _____ FMOD

The foil feed can be interrupted between printing cycles by means of the foil auto economy, by which foil is saved particularly with long labels with small areas to be printed. The automatic mode is to be activated with blank areas of a length from. approx. 18 mm.
Selection between thermo - transfer and thermo print is possible. This selection is necessary for switching the FOIL END RECOGNITION.

„CONT“ Thermo-transfer print
„SAVE“ FOIL auto-economy
„NONE“ Thermo print

Note: Thermo print depends on your material. Do tests before using this mode.

Machine direction _____ **L-R**

The machine is available in a right and left hand version. In the right hand version the product transport is from left to right when you look to the front of the machine.

Loop control printer_____**SW01**

The value defines the loop position to start the printer.

Loop control dispenser_____**SW02**

The value defines the loop position where no dispenser starts will be accepted.

Online/Offline mode_____**OMOD**

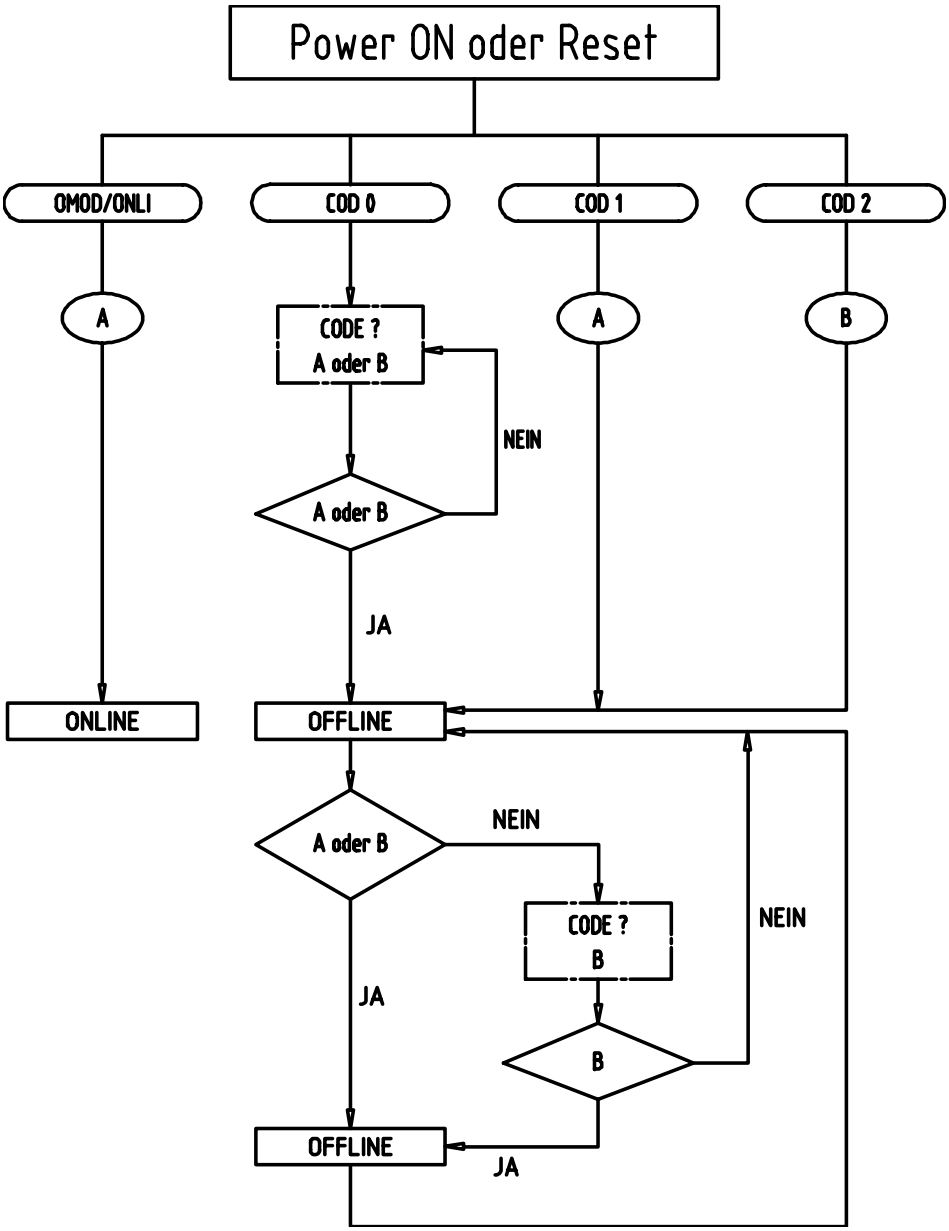
Mode of operation of printer after connection

„ONLI“ Printer is immediately in the ONLINE mode after connection
„OFFL“ Printer is immediately in the OFFLINE mode after connection

Password _____ **CODE**

Resistant or temporary printer protection from unauthorised use is possible (see also next page)

„COD0“ All functions locked - except password inquiry
„COD1“ ONLINE mode, i.e. printing is possible only
„COD2“ All functions are accessible



Display (printer mode)

COD 1 Access levels (selection under parameter; CODE)

COD0	all functions locked - except password inquiry
COD1	Access to ONLINE mode, printing is possible
COD2	All functions are accessible
OMOD/ONLI	After connecting in the ONLINE mode

☐	Entry of password for authorised access
	A = NEXT, NEXT, FEED, ON/OFF
	B = FEED, ON/OFF, NEXT, FEED, FEED
☐	Corresponds to authorised access, no entry required
☐	Check of entered password
Access time	An entered password - A or B - is active until reset or re connection of printer
	Access level adjustment - COD0, COD1, COD2 is of resident effectiveness until the next alteration

Value of print head resistor _____ HRES

In order to optimise the print quality the value of the head resistor (noted at print head - 11,4 dot/mm print head = 1000 - 1500 Ohm) has to be keyed in when exchanging the print head.

CAUTION! - The machine is connected to mains. Only authorised personnel may open the cover. Operation without this cover is not allowed.

This adjustment is not affected when performing the factory setting. Take readings of value and key in accordingly

„XXXX“ Possible value is between „1000“ and „1500“

Lowering the head temperature _____HEAT

Printing full-surface print images inordinately heats up the print head, and therefore also the thermal transfer ribbon. In order to ensure a uniformly good print image, the parameter HEAT is used to decrease the power supply proportionately to the temperature of the print head.

xxHR Value range: 00 to 50; unit interval: 10; default: 00
xx = 00 No temperature reduction
xx = 10, 20, ..., 80 up to 10, 20, ..., 80 percent temperature reduction if the print head is hot

Offset for head voltage _____ HVOF

Here an offset value can be added to the value transmitted by the printer (#HV or #!H) to allow for different printer properties.

Xxxx Values from -50 to +50 are possible (display -50 ... 0 ... 50)
Progression Unit interval = 1

Real Time Clock _____ CLCK

Adjusting the real time clock to the current time. This parameter can be activated only if the optional clock is installed. The clock has a life of about 10 years. Leap years are calculated automatically.

Adjustment to the correct time has to be performed by the user.

- press (NEXT) = forward or (PRIOR) = backward to adjust the correct time
- Press (ON/OFFLINE) - key to switch to the units of time. The cursor is moving only forward through the units.
- Acknowledgement by pressing (ON/OFF) after the unit: YE = Year will set the adjusted time as default.

Key	Display	Function
ENTER	**MI..**	**Minutes Adjustment**
ENTER	**HO..**	**Hours Adjustment**
ENTER	**DA..**	**Days Adjustment**
ENTER	**MO..**	**Month Adjustment**
ENTER	**YE..**	**Year Adjustment**
ENTER	**CLCK**	**Acknowledgement**

Seconds and hundredth can not be selected. Their adjustment is performed by acknowledging the time adjustment right in the moment when the real time passes the zero line as these two units are set back to zero in this moment.

Routine to gap detection _____ LREP

The maximal length for not detected gaps can be varied. For difficult detection, i.e. little differences in light transmittance from gap to label it is recommended to shorten the search length in order to save labels when gaps are not found. During search no print is performed.

„R 0“ After a printed label a gap must be detected, otherwise an error message interrupts the running print job. Ditto for search length up to max. = 5 x label length after the last printed label, subsequently the error message appears.

Automatic label reprint _____ COPY

Switches the automatic label reprint on/off.

ON The last printed label is reprinted in an error case.

OFF No label reprint.

Selection of Character Set _____ CSET

„256“ 256 character available
at the OCR-fonts # 110 and # 116 corresponding to their specs

„224“ Characters below 20h are not accessible

Material End Recognition _____ MEND

For label material with gaps longer than 15mm resp. material with differing light diffusion permeability (error ST05 = material end, when material is correctly inserted) the material end recognition can be cancelled.

„YES“ for activating the material end recognition
„NO“ for deactivating the material end recognition

6.6 JCLR: Clearance of Print Job

The present or interrupted print job can be cleared.

(ON/OFFLINE)-key	If print job is to be cleared (cancellation will be acknowledged by a hoot signal)
(FEED)- or (NEXT)-key	If print job is not to be cleared

6.7 SCLR: Clearance of Printer Buffer

The spooler is cleared completely.

CAUTION! - All print jobs are cleared (cancellation will be acknowledged by a hoot signal)

(FEED)- or (NEXT)-key	If spooler is not to be cleared

6.8 OTHR: Others = Special Parameters

This submenu contains special configuration functions. Some functions are protected by special password.

Down Load of fonts _____ DOWN

A PCMCIA card (two of them) can be inserted into the printer.
A RAM card can be formatted in the printer and after that fonts can be down loaded into the card through the printer. Cards the printer can write to are font cards, speedo cards and data base cards.
Exact information you can find in the EASY PLUG manual or in the card manual.

Formatting of RAM Card _____ LCLR

The printer can be equipped with PCMCIA cards.
The RAM card may be formatted as spooler/logo storage and subsequently be written on with logos (0-255) via the Easy Plug command.
A maximum number of one card written on with logos can be used during printing process.

The printer is using SLOT0 if a card is found there – if not SLOT1 is used. to format the card. After that a reset takes place. Are two cards used in the printer (one for logos one for fonts) the printer is selecting the cards.
If one RAM card and one PROM card (non - erasable) are simultaneously used, the sequence of use is optional:

CAUTION! - All data contained on the RAM card and in the spooler are cleared. Observe instructions for plugging- in of RAM card!

(ON/OFFLINE) key If RAM card is to be formatted
(FEED) or (NEXT key If RAM card is not to be formatted

According to the selected adjustment, the display changes over immediately or after completion of formatting to Display: **"LCLR"**

In case card can not be accepted or the card defective or not plugged in the error message: **LCLR - FAIL** appears (message is also signalled by hoot).

Memory Check _____ MCHK

It is possible to check 5 different storage sections.

Check	Stage	Section
MEMO	BNK0 to BNKx	Check memory (RAM)
FON0	BKN0 to BNKx	Character generator - section 0 (ROM)
FON1	BKN0 to BNKx	Character generator - section 1 (not used)
CAD0	Card/Slot 0	- only RAM Cards
CAD1	Card/Slot 1	only RAM Cards

After start of the check, the individual modules are checked in accordance with their sequence and acknowledge by the display: - OK - in each stage, or stopped if an error occurs. In this event the defective stage is displayed.
Acknowledgements are also indicated by a short acoustic signal, and errors by a flashing display and a continuos acoustic signal.
Error messages are to be acknowledged by operation of an optional key.

Check of Sensors _____ SCHK

The displayed, invariable values (measured from present application) are used in the analysis of the individual sensor. When checking the sensor please avoid any disturbing illumination.

Sensor may be selected by means of the **NEXT** or **PRIOR** key.

Pxxx **Gap sensor**
0-5 = without material
10-255 = with material

CAUTION! - In case the value without materials is > 5 or with material <10 clean sensor by means of pressure air. If this fails, call service technician.

Rxxx **Dancer sensor**
< 85 = home position
200-240 = end position

If this sensor is not installed the display shows „R255“

Fxxx **Foil sensor**
0 or 15 = admissible values on rotation of the ribbon unwind mandrel

Hxxx **Print head sensor**
0 = Print head lifted
15 = Print head down

Txxx Temperature sensor
not in use with actual firmware

Mxxx Material end sensor
0 = without material
15 = with material

Demo printout _____ PCHK

Continuously running demo printout.

(ON/OFFLINE)-key	If print is to be started (Execution will be acknowledged by a hoot signal)
(FEED) or (NEXT)-key	If print is not to be started
(ON/OFFLINE)-key	Start respectively stop Demo Printout by key

Adjustment to Factory Setting _____ FACT

All parameters are overwritten by factory settings.
The respective actual adjustment can be checked via the Info Printout „STA0“ (see also Info Printouts „STA0“).

Note: All data in buffer including those from an interrupted print job will be cancelled!

(ON/OFFLINE) key	All parameters are to be adjusted to factory setting. (execution will be acknowledged by a hoot signal)
(FEED) or (NEXT) key	Parameters are not to be changed

6.9 Print head temperature

The print head temperature can be reduced/increased by reduction/increase of the setting value, respectively. An extra bold printing result is obtained with increased heat supply.

Optical Features of Temperature Setting	
Optimal temperature	Contrast print
Low temperature	Faint print
High temperature	Smeared print, characters too bold
Extremely high temperature	Ink particles evaporate, i.e. faint print; Print head overheated > damage to print head.

Adjustment is done starting from ONLINE mode respectively sub modes.

- Simultaneously operate **(PRIOR)** and **(NEXT)** key Display: **"HVxx"**
- By **(PRIOR)** or **(NEXT)** key increasing or decreasing of value
  Adjusting range: 1 = low temperature and
  99 = high temperature
- Acknowledge by (ON-/OFFLINE) key

7. Remote programming

The machine has a serial interface according to the standard RS232C. Via this interface parameters can be adjusted. All received commands are tested for syntax and legal value range.

Invalid commands and parameters are ignored. An error message is not given in this case.

All commands received over the serial interface are tested for syntax and range; invalid commands and out of range parameter values are ignored. A warning message is not given in these cases. However in the case of framing, parity or overrun errors the warning "W__3" is generated.

The commands are made up of sequences of ASCII characters. Each command starts with "#" and "!" followed by a 4 character code. The reception of the "#" character indicates the start of a new command to the machine.

The codes are similar to the parameter names shown in the display.

7.1 Data of the serial interface

The pin connection of the interface plug is shown in the table below.

Dispenser connector		**Signal description**			**PC**	
25 pol D-Sub	9 pol D-Sub	**Direction**	**Code**	**Description**	**25 pol**	**9 pol**
Socket 2	3	Output	TxD	Transmit data	3	2
Socket 3	2	Input	RxD	Receive data	2	3
Socket 5	8	Input	CTS	Clear to send	4	7
Socket 4	7	Output	RTS	Request to send	5	8
Socket 7	5		GND		7	5
Socket 20	4	Output	DTR		6	6
Socket 24		(if jumper on)	+ 10V	For external use	8	

All other pins are not connected.

Adjustable data values

Baudrate	150, 300, 600, 1200, 2400, 4800, 9600, 19200 Baud
Data bits	7 or 8 bits
Stop bits	1 or 2 bits
Parity	No Parity, Parity bit always 0, odd or even parity
Handshake	RTS/CTS

Factory interface deactivated, at reactivation the parameters will be set to 8 data bits, 2 stop bits and no parity bit.

7.2 Interface commands

The below described commands will change one of the labelling parameter. The values are not stored and will be lost when turning off power.
If the sequence nnnn is replaced by the character "?" then the current value of that parameter will be returned by the labelling machine as a 4 character string confirming the name of the parameter requested followed by 4 numbers representing the current value of that parameter.
The character 04H terminates all return messages.

Example
PC send the message: #!VELO?
Machine returns: VELO0300<04H>

Command	Description	Range
#!APOSnnnn	Value APOS	-0050 – 0100 mm
#!APPLnnnn	Applicator type	0000 direct dispense 0001 ASA 0002 EP 0003 EP_U 0004 PLUA 0005 INDX
#!APSFnnnn	APSF function	0000 off 0001 on
#!APT1nnnn	Applicator time	0001 – 7500 ms
#!APT2nnnn	Applicator time	0001 – 7500 ms
#!APT3nnnn	Applicator time	0000 – 5000 ms
#!ASTPnnnn	Value ASTP	-0020 – 0050 mm
#!BANKnnnn	Change product bank	0000 - 0009
#!BLOWnnnn	Blow on time = APT 2	0001 - 7500 ms
#!COMPnnnn	Automatic label compensation	0000 = Off 0001 = On
#!CONTnnnn	Material contrast	0001 – 0200 0000 automatically
#!DISTnnnn	Distance label sensor – dispensing edge	0080 – 9999 * 0.1 mm
#!EGRAnnn	Gear ratio	0300 – 1000
#!LPITnnnn	Label length	0005 – 0999 mm 0000 automatically

Command	Description	Range
#!MACHnnnn	Machine type	0000 ALS230 0001 ALX720 0002 ALS330 0003 ALS430
#!MDIRnnnn	Motor direction	0000 Right --- > 0001 Left < ---
#!MLABnnnn	Missing label error	0000 NONE 0001 Warning 0002 Error 1 0003 Error 2
#!PDT nnnn	Print dwell time	0001 – 1000 ms 0000 printer off
#!PHT nnnn	Printer hold time	0001 – 7500 ms
#!POS_nnn	Labelling position	0001 – 9999 * 0.1 mm
#!PRDLnnnn	Product length	0005 – 4000 mm
#!P_S_nnnn	Polarity product sensor	0000 LEDG 0001 TEDG
#!RAMPnnnn	Acceleration Ramp	0000 NORM 0001 FAST
#!SLEWnnnn	Slew speed	0000 = FAST 0001 = SLOW
#!STADnnnn	Start delay	0001 - 9999 ms
#!STODnnnn	Stop position	0080 - 9999 * 0.1 mm
#!VELOnnnn	Speed	0020 - 0300 * 0.1m/min
#!SAVEnnnn	Store in data bank	0001 - 0009
#!LOADnnnn	Load data bank	0001 - 0009

The following commands do not have parameter values. With these commands the host can monitor and control the machine.

#!CLRC Set label counter to 0

#!CLRE Clear error message

#!CLRW Clear warning

#!ERRF The machine sends an error status to the monitoring computer. The message ERR8___4__1_<04H> means, error 8, 4 and 1 have occurred.

#!WARF The machine sends a warning status to the monitoring computer. The message WARF7_____0 means: The warnings 7 and 0 have occurred.

#!LABC The machine sends the number of dispensed labels e.g. LABC0000008359 back

#!SP__ The machine is set to off. The product sensor is disabled and labelling will therefore be stopped.

#!SR__ The machine is set to on. The product sensor is enabled and labelling can restart.

#!XC Pharmacy Code ackn.
Pharmacy Code acknowledgement
#!XC delivers the data of the last printed pharmacy bar code. Delivery occurs in the form:
xxxxxxxyyyyyyyy (Code content without checksum), with:
xxxxxxx = 7-digit CNK number
yyyyyyyy = 8-digit sequential number
If no pharmacy bar code was printed since the last printer reset, the delivery is 000000000000000.

For a full automatic operation, the following command sequence is required in case of an error:

#!ERRF Request error
#!CLRE Clear error message after fixing the error. The labeller shows „INIT“
#!SR__ Clear INIT message

7.3 Programming of printer functions

There are some general commands for programming the printer functions (head, temperature, label dimension etc.). These are described in the EASY Plug manual. The special functions for the machine are explained in the following table:

Command	Description	Range
#!/GAPn	Gap function	0 = Auto 1 - 255 = manual value
#!/FMODn	Foil mode	1 = Continue 2 = Save 3 = None

8. Status messages

The software checks during the labelling permanently, if the machine runs under normal operation. There are 3 types of messages indicating a problem:

- STxx: A fault condition of the printer
- E__x: Labelling of the dispenser is not possible
- W__x: The dispenser can be continue labelling, but a problem has occurred

By pressing the key ENTER the message will be erased. Via the serial interface the current error status could be requested.
If an error cannot be erased, please call your local service technician.

Problem	Meaning	How to solve
No display	No power supply	Check display connection, Check mains cable and plug Check mains fuses within the voltage selector
V...display of version number-one or several keys of control panel got jammed		Check whether key got jammed Try to move it by jogging If no key got jammed, or if a jammed key cannot be moved again: call customer service

8.1 Printer messages

Problem	Meaning	How to solve
ST01	All parameters are adjusted to factory setting after acknowledgement	Prepare printout of parameter adjustment (STA0) Check parameters specific to the customer for their deviation from factory settings Adjust parameters
ST02	EEPROM Error	Call customer service

Problem	Meaning	How to solve
ST05	Material end	Depress NEXT key to switch off acoustic signal Depress (FEED) key to acknowledge status message Display: **“OFF“** Insert material, check and, in case, correct light barrier position (ON/OFF) key - job is further processed gap is re-initialised
ST06	Print head overheating	Integrate printing breaks. Lower TEMP. Check HRES
ST07	Foil end	**WITH THERMAL PRINT** Make sure that program point „FMOD“ is set to „NO“ **WITH THERMAL-TRANSFER PRINT** Tighten foil resp. adjust spring blade at foil unwind gudgeon that the foil is drawing the gudgeon and the foils paper core can be still removed Depress (FEED) key to acknowledge status message display: “OFF“ (ON/OFF) key - job is further processed gap is re-initialised Depress (NEXT) key to switch off acoustic signal Depress (FEED) key to acknowledge status message display: “OFF“ - insert foil (ON/OFF) key - job is further processed gap is re-initialised
ST08	No gap detected or 3 or more labels missing	Check print mask for gap definition Make sure that correct material is inserted Make sure that light barrier is clean Check material guide and light barrier position (ON/OFF) key -job is further processed gap is re-initialised Media is not moving into media sensor (infeed) media to short

Problem	Meaning	How to solve
ST10/11	Check -total error - RAM card	Check whether correct RAM card (spooler + logo) is plugged in Reformat card **Caution:** All data are cleared!
ST13	Barcode not to read	• check scanner • check print quality
ST15	Function of print head lifting is interrupted	Check whether head pressing leaver is sticking by poll out, correct if necessary
ST17	Pressure lever is not closed	check lever and close if open
ST20	Wrong immediate command (Auto-Acknowledgement)	Command is ignored
ST21	Wrong format command (between #ER and #Q) (Auto-Acknowledgement)	Yet execution of print job
ST22	Format command without introductory #ER (Auto-Acknowledgement)	Yet execution of print job
ST23	Invalid command (Auto-Acknowledgement)	Command is ignored
ST24	RS232 Reception error > Handshake Problem	Switch off acoustic signal by means of (NEXT) key Acknowledge by (FEED) key display: “OFF“ Job is activated, but characters recognised as false are not used Execute job by operation of (ON/OFF) key or Clear job(s) in program „SCLR“ and transmit again Check adjustments: BAUD, PARI, SBIT, DBIT, HAND Check for external influence Check transmission line
ST25	Reception buffer overflow • Interface is switched inactive • Reception buffer is cleared	Switch off acoustic signal by means of (NEXT) key Acknowledge by (ON/OFF) or (FF) key display: “OFF“ Check transmission synchronisation („HAND“) Summery of Parameters and Info Printouts
ST26	Inadmissible size or printing offset to gap (Auto-Acknowledgement)	Size of last format or last printing offset is kept

Problem	Meaning	How to solve
ST27	Number overflow (Auto-Acknowledgement)	Check whether numbers exceed 65000 or format positions exceeding maximum label dimension are used
ST28	Character, line or logo do not fit into the physical printing format (Auto-Acknowledgement) Characters fitting perfectly into the printing format are printed only	Change positions accordingly
ST29	Logo number already existing (Auto-Acknowledgement) Former logo is not overwritten	First clear former logo, or use another logo number
ST30	Logo too large for logo buffer or format storage (Auto-Acknowledgement)	
ST31	Logo number not within address area (inadmissible logo number) (Auto-Acknowledgement)	Check whether number smaller than 0 or greater than 255 Check whether selected logo number is occupied
ST32	Characters, lines, blocks are positioned in area limited by the adjusted Batch Mode (Auto-Acknowledgement) The position will be shifted automatically in the imprintable area	Change parameter adjustment from Batch mode to R1:1 or N1:1 mode Correct field position accordingly to non imprintable area.
ST33	EASY PLUG wrong command #PA to #IM	remove command
ST35	Logo is to big for the card memory (Auto- Acknowledgement)	use bigger card
ST36	card can not be found or programmed	use SRAM card and format as colour card check if card is write protected
ST39	EASY PLUG card speedo error	use correct speedo command (see EASY PLUG)
ST40	RS232 - Framing error	Check parameter adjustments at printer and computer: BAUD, SBIT
ST41	RS232 – Parity error	Check parameter adjustments at printer and computer: PARI
ST44	ID Matrix Barcode error	Check command

Problem	Meaning	How to solve
ST46	Wrong bar code number	Easy Plug: Invalid bar code number within the #YB command. The status message disappears automatically after 3 s. Afterwards, the printer continues printing. The label layout is printed without the relevant bar code. Check command and recreate.
ST47	Faulty Pharmacy Code	The bar code information given within the Easy-Plug command contains invalid characters or has an invalid length. The status message disappears automatically after 3 s. Afterwards, the printer continues printing. The label layout is printed without the relevant bar code. Check command and recreate.
ST50	Read error by scanner	Check scanner Check print quality
ST51	Scanner can not be programmed	switch off and on the scanner if you have no success call the service centre
ST59	Factory Reset has been done before	if factory reset is wanted – do it – all data are lost
ST60	Memory allocation error	switch ON/OFF the printer if not helpful call service technician
ST61	Font allocation error	Disconnection and re-connection Call customer service if error cannot be eliminated **Caution:** Allow for at least 60 seconds between disconnection and re-connection.
ST62	Label is to long or to much commands sent (Auto-Acknowledgement)	Correct length of label or extend memory (remove cards not in use ore reduce spooler size) Remove some commands
ST69	Not initialised interruption	Disconnect and re-connect **Caution:** Allow for at least 60 seconds between disconnection and re-connection.

Problem	Meaning	How to solve
ST71	Error at print head pulse management	Disconnect and re-connect, in case of failure call service technician. **Caution:** Allow for at least 60 seconds between disconnection and re-connection.
ST72	Error at generation of print image with scaleable font(s)	Insert correct font card or if a firmware update was performed repeat it.
ST73	Speedo – wrong scaling	check speedo command
ST80	wrong file name within #FO command	check command
ST81	field number not found	check number in EASY PLUG command
ST82	Syntax of #YT or #YB command is wrong	syntax of command is wrong
ST83	Number of data field is to big	Check number of Easy Card command
ST84	Quantity of variable character = 0	check Easy Card command
ST85	No EASY PLUG card found	insert card format card
ST86	Index data base to big	change size of index data base
ST87	Index data base could not be set up	Check set up of index data base
ST88	no possibility to sort data base	check data strings
ST89	barcode information could not be found	check data string information
ST90	double data string	remove double data string
ST91	Barcode not to read	check scanner check print quality
ST96	EASY CARD undefined error	accept
ST97	EASY CARD undefined error	accept
ST98	Interface undefined error	accept
ST99	Status messages not defined	Acknowledge

8.2 Dispenser Error Messages

In case of an error message the relevant output is switched. The signal can be used for interconnection with an external machine control.

STO! Power-fail message
The message STO! appears in the display as the machine is switched off or if the mains supply voltage has fallen below specification.
The message STO! (store) indicates that the machine has stored some parameters internally as a power fail condition was detected. The error output is switched active and the ready output inactive simultaneously with STO! appearing in the display.
If the mains supply voltage only experiences a drop in level and then returns to a correct level then the ready output is restored to its previous condition but the message STO! will remain in the display to indicate that there has been a problem with the mains supply.

Message	Meaning	How to solve
E__0	Pressure roller is open	Close the pressure roll and make a new initialisation if necessary
E__1	During material transport no label is recognised over a length of 4 labels	Insert new material and check the label sensor
E__2	EP applicator not in HOME position	Check air supply. Applicator not connected. HOME switch not adjusted
E__3	Check sum of the configuration data is wrong. All Parameters are set to the factory adjustment.	Call the configuration menu and adjust all parameters again.
E__4	Check sum of the labelling data is wrong. Labelling Parameters are set to the factory adjustment.	All labelling parameter have to be adjusted again
E__5	10V supply voltage for label sensor low.	Short circuit in label sensor or cable. Voltage regulator U14 is damaged.
E__6	24V Voltage low	Short circuit on an output. Total load too high i.e. max is 3A for all outputs. Voltage regulator U1 is damaged. Change main board.
E__7	Material initialization failed	Check if the label web is threaded through the label sensor
E__8	Error stepper motor driver	The stepper motor control has detected an error. The fault is indicated by the LED’s on the driver.
E__9	10V supply for label sensor too high	Voltage regulator U14 damaged
E__10	Missing label on product	One or several product could not be labelled. Distance between products too

Message	Meaning	How to solve
		close. Increase speed of printer.
___0	Process error (Divide overflow)	Hardware failure external noise. EPROM damaged. Turn off power and on again. Change EPROM or main board
___1	Illegal interrupt (processing error)	Hardware failure external noise. EPROM damaged. Turn off power and on again. Change EPROM or main board
___2	Illegal bank interrupt (processing error)	Hardware failure external noise. EPROM damaged. Turn off power and on again. Change EPROM or main board
INTO	Illegal interrupt INTP0 (processing error)	Hardware failure external noise. EPROM damaged. Turn off power and on again. Change EPROM or main board.

8.3 Dispenser warnings

In case of a warning message the relevant output is switched. The signal can be used for interconnection with an external machine control. Warning W__5 activates only the special OD warn output.

Message	Meaning	How to solve
W__0	New start signal from product sensor while ALX720 is dispensing a label Multiple signals from the same product Several missing labels on the web, which can not be compensated	Slow down conveyor speed or product sequence. Adjust higher labelling speed Increase the parameter value of PRDL product length
W__2	Error while writing in the EEPROM	EEPROM defect, Start machine again, if problem remains the same, exchange EEPROM as soon as possible
W__3	RS232 transfer error	Check interface parameter in the configuration menu and in the host
W__4	Conveyor speed exceeded the max. speed of the dispenser	Slow down conveyor. If average conveyor speed is OK then check for oscillation in the conveyor speed or vibration of the pulse generator
W__5	Material end by the OD control recognised	Insert a new material roll

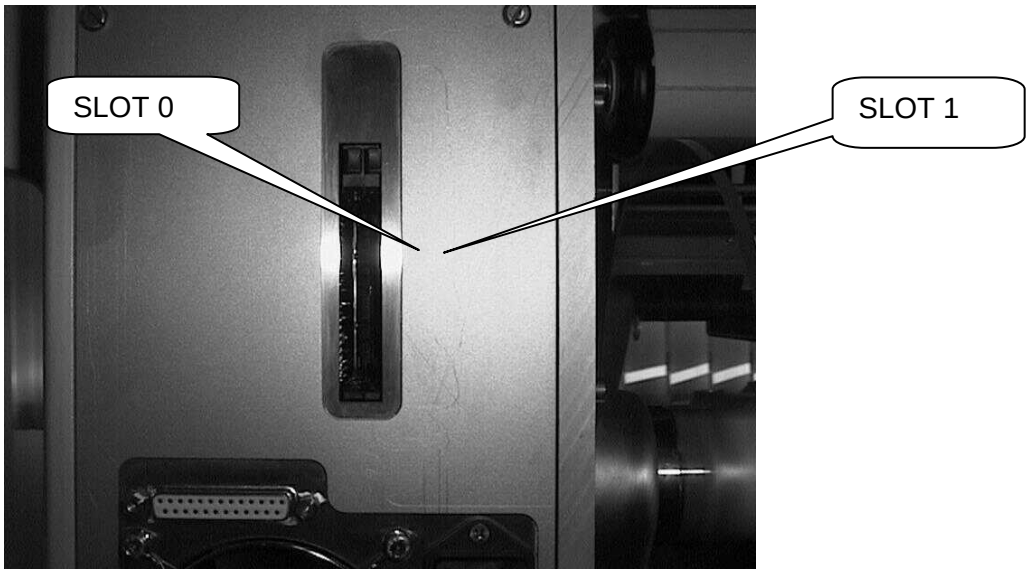
Message	Meaning	How to solve
W__6	Too many products between sensor and dispensing edge	Move the sensor closer to the dispensing edge
W__7	ALX 720: Loop was empty when labelling should start	Increase print speed. If the label is not too long: increase SW02

9. Card plug in modules

These plug in modules are provided for the optional font and logo cards. Use PCMCIA cards up to a size of 2 MB only. There is a maximum of 1 logo card alone or together with a font card – as well one or two font cards are possible. Logo Cards and data bank cards are formatted by the printer itself.

Font cards are to be programmed by supplier only.

CAUTION! - Exclusively plug in cards approved by the manufacturer must be used. Insert, remove, or exchange card not until 60 seconds after disconnection of unit.



9.1 Card hardware

Printer type	Card type	Quantity card	Memory of card	PROM card	S-RAM card	Flash card
720	PCMCIA	2	2 MB	-	yes	yes

For more information regarding card types please refer to the card manual.

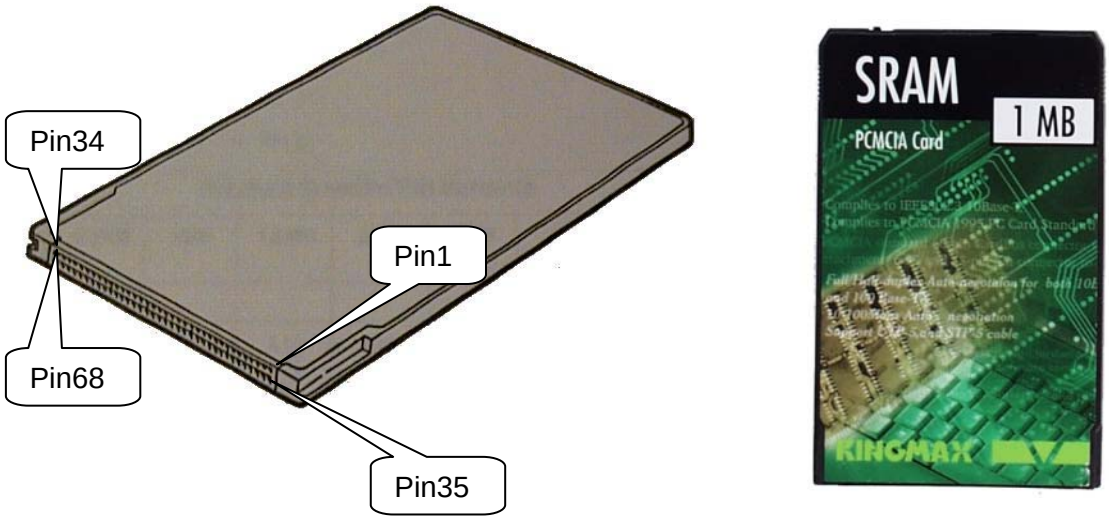


Figure 17 PCMCIA card pin assignment (left); PCMCIA card (right)

9.2 Memory types

9.2.1 PROM card (Programmable Read Only Memory)

Programmable only with a special program unit (EPROM burner) – it is a on time card, normally used to store fonts and logos witch are used again and again in the same shape size or look like. The card will be programmed in the factory due to the customer wishes.
Memory size and capacity depends to the printer.

9.2.2 EPROM card (Erasable Programmable Read Only Memory)

Programmable only with a special program unit (EPROM burner) – it is a on time card, normally used to store fonts and logos witch are used again and again in the same shape size or look like. The card will be programmed in the factory due to the customer wishes. The difference between EPROM and PROM card is that the EPROM card can be cleared by using ultra violet light.
Is not used in our printer.

9.2.3 EEPROM or E²PROM (Electric Erasable Programmable Read Only Memory)

The function is similar to an EPROM card – to clear the memory there is no light used, it works with electric power. The clear procedure is very slow. The data are hold in the memory after power down – without battery !
Is not used in our printer.

9.2.4 FLASH RAM / PROM card

A name used and defined by the company INTEL witch has used this technology first. The memory is build similar to the EEPROM but can be cleared in single sectors. A low voltage (5V) is enough to clear the memory and this voltage is available in the most places (PC/printer). The clear procedure is very fast, the data's are stored in the memory after power down – without battery.
This card is re programmable and can be programmed in a PC with the data's. Stored on this card type can be fonts and logos – same as on the EPROM card. In difference it is possible to store as well formats.
Memory size is different depending on card type and printer.

9.2.5 RAM card (Random Access Memory)

Very fast, volatile memory. Each single memory cell is programmable and readable. Using RAM card means that a battery is used to make the memory non volatile- the data's are still in the memory after power is switched off, reasoned by the power of the battery.
The card type is re programmable and depending on the printer type the card can be programmed in the printer (via down load) or at the PC. It is possible to store – similar to the EPROM card, as well logos fonts but different to the EPROM card as well formats
Memory size is different depending on card type and printer.

9.3 Card use

Depending on the printer type the cards can be used different. Attached you will find a table showing card type, menu point to clear the card – where the card has to be formatted – and as well the quantity of files.

card type	**menu point**	**formatting**	**formatting**	**quantity of files**
Easy Card Format Card	---		DOS	as much as you want (max. memory)
Logo Card	LCLR	intern		---
Font Card	DOWN	intern	DOS	one, „V55_CARD.BIN“
Speedo Card	DOWN	intern	DOS	one, „PROMFILE.BIN“
DOS Card	---		DOS	as much as you want
Database Card	DOWN	intern		one & Index
Barcode Card	---	intern		---
Image Card	ICLR	intern		---

10. Connections and signals

This machine has a number of inputs to connect sensor's and a control. Outputs are available for applicators, a printer and other purposes.

10.1 Output signals

This machine has eight outputs, which switch the output from open circuit to + 24V. The maximum current must not exceed 500 mA. The four signals for error messages, machine ready, low material and warnings are available for other machines in the process or additional alarm signals. For connecting an applicator three signals are available and one additional for the printer.
The output signals are available at terminal connector CN33 on the main board. The wiring of the terminal is shown otherwise.

10.1.1 Error and warning output

The outputs for errors and warnings are available on the terminal CN33 and optional on the I/O plug. The signals are switched active (+24V) if an error or warning occurs. When the error or warning is erased, the signal becomes passive again.

10.1.2 Printer output

This machine can be connected to a printer. To use the printer the PDT parameter should be adjusted.
A new label cannot be dispensed until the printer dwell time set in PDT is over.

10.1.3 OD-Control output

This output is switched active (+24V) if the OD-Control input is switched active during dispensing.

10.1.4 Ready output

This output shows when the machine is ready for labelling. This output is switched inactive if there is:

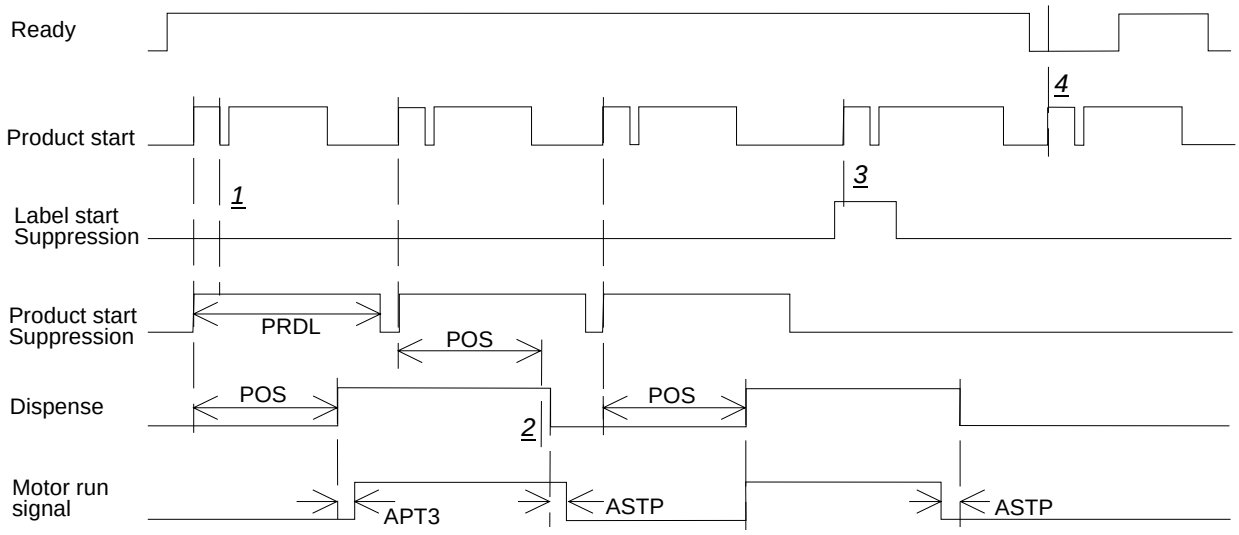
- an error message appears in the display
- the mains supply voltage has fallen below specification
- the machine requires initialisation
- in OFF condition.

10.2 Applicator modes

The machine is able to dispense the label direct on the passing product. There is also the possibility to drive without any external control a wide range of applicators.

10.2.1 Signals for direct dispense

For direct dispensing the airstream signal can be used to control a pneumatic driven dispensing edge. The start of the airstream signal (= motor run signal) could be behind the start of the dispense motor, adjusted with the function APT3. The signal is switched inactive, when the label dispense has been completed. Also the stop could be adjusted with the function ASTP to switch inactive before or behind the dispense motor stop.



1 Productstart disabled. PRDL activ

2 Missing Label: New start of dispense during dispenser activ

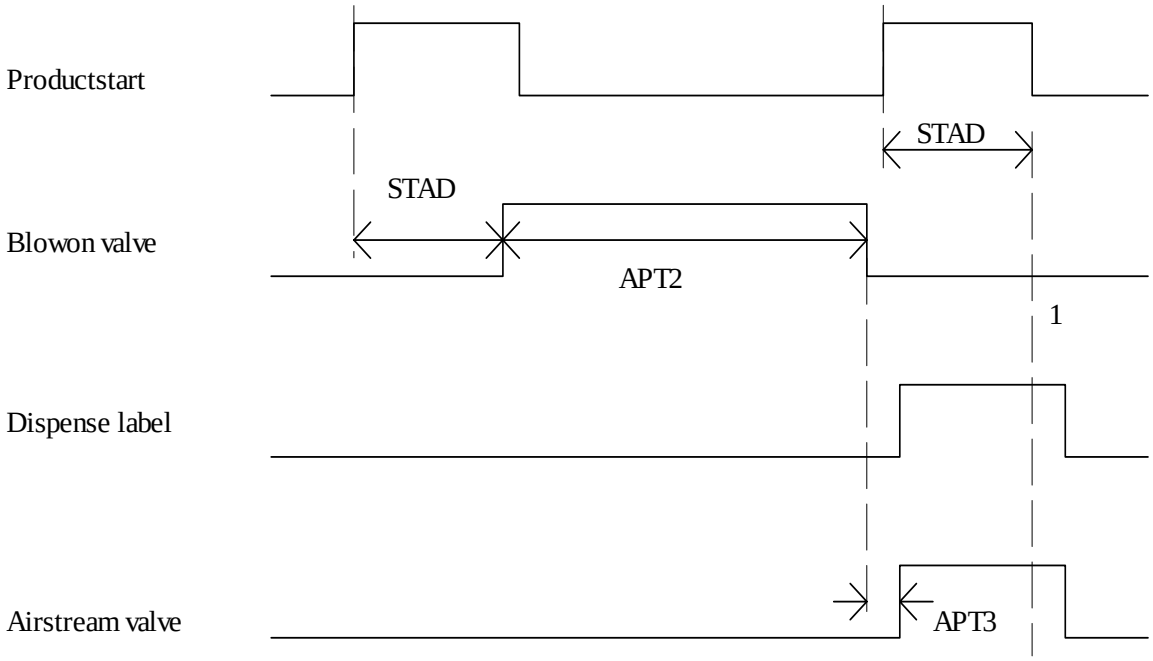
3 Inhibit activ

4 Machine not ready. Errorcondition or not online

Figure 18 Timing diagram direct dispense

10.2.2 Control signals for the ASA applicator

For controlling an air stream applicator the signals air- stream and blow on are necessary. The time period APT2 defines how long the blow on signal is active. After labelling the product and the time period of APT3 a new label will be dispensed on to the applicator. After that the machine is ready for a new labelling.
All errors are given after 5 seconds!

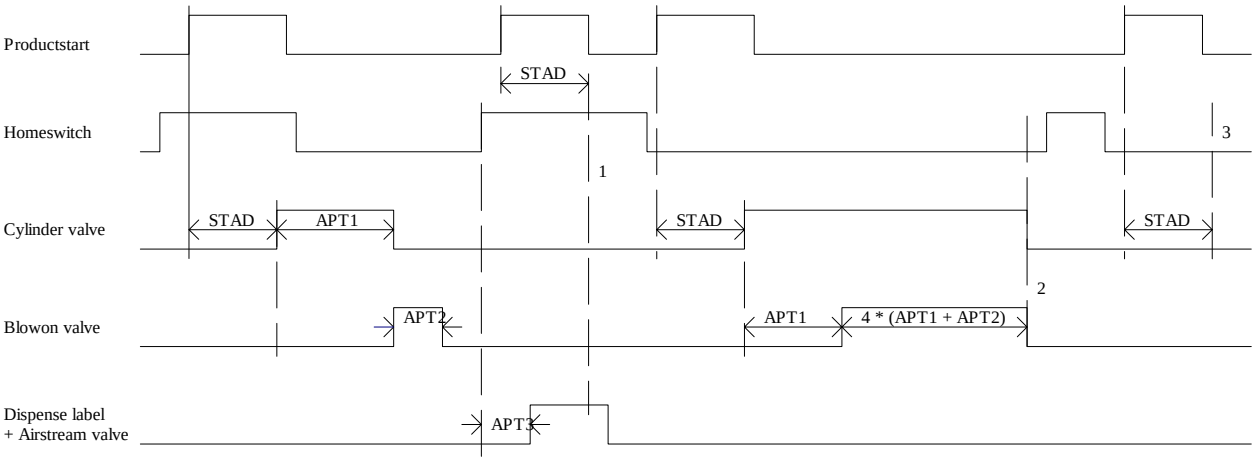


1 Missing Label: Labeller not ready for dispense

Figure 19 Timing ASA applicator

10.2.3 Signals for the EP applicator

For controlling the applicator the signals air stream, cylinder valve and blow on are necessary. After a product signal has occurred the labelling cylinder valve is switched active after the delay STAD. However if at this time the applicator is not in the home position then error message E__2 is generated. After the delay time APT1 the blow on valve is switched active for the time APT2.
When APT2 is completed both the labelling cylinder valve and the blow on valve signals are switched inactive. If the control does not read the home position in the time given - 3* (APT1+ APT2) - than the error message E__2 is generated.



1 Missing Label: Labeller not ready for dispense

2 Error: Homeposition not detected

3 Error: Applicator not in homeposition

Figure 20 Timing EP applicator

10.2.4 Applicator connector

The applicator connection is done via a 15 pole D-sub connector common to other machines.

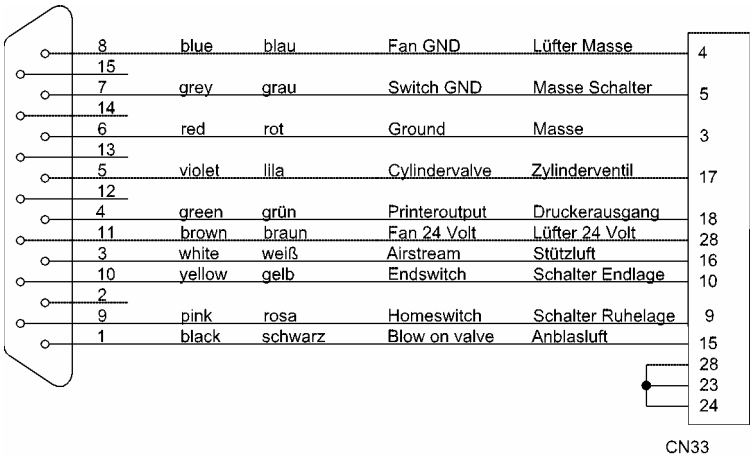

8 blue blau Fan GND Lüfter Masse 4
15
7 grey grau Switch GND Masse Schalter 5
14
6 red rot Ground Masse 3
13
5 violet lila Cylindervalve Zylinderventil 17
12
4 green grün Printeroutput Druckerausgang 18
11 brown braun Fan 24 Volt Lüfter 24 Volt 28
3 white weiß Airstream Stützluft 16
10 yellow gelb Endswitch Schalter Endlage 10
2
9 pink rosa Homeswitch Schalter Ruhelage 9
1 black schwarz Blow on valve Anblasluft 15
28
23
24
CN33

Figure 21 Applicator connector

10.3 Input signals

This machine (dispenser) is provided with photo coupled inputs for:

- the product sensor signal
- an inhibit signal for inhibiting labelling
- a signal from an OD control which shows the end of the material roll.
- a signal from an automatic product speed follower
- the EP applicator signals from the HOME and END switches
- an unused input for future extensions or customer specific software (used for loop control in the 720)

The inputs are galvanically separated through photo couplers to connect to PNP or NPN outputs. The wiring and the connection of the signal plug is shown otherwise. The input voltage across the inputs must be in the range of 15 V to 30 V to switch active.

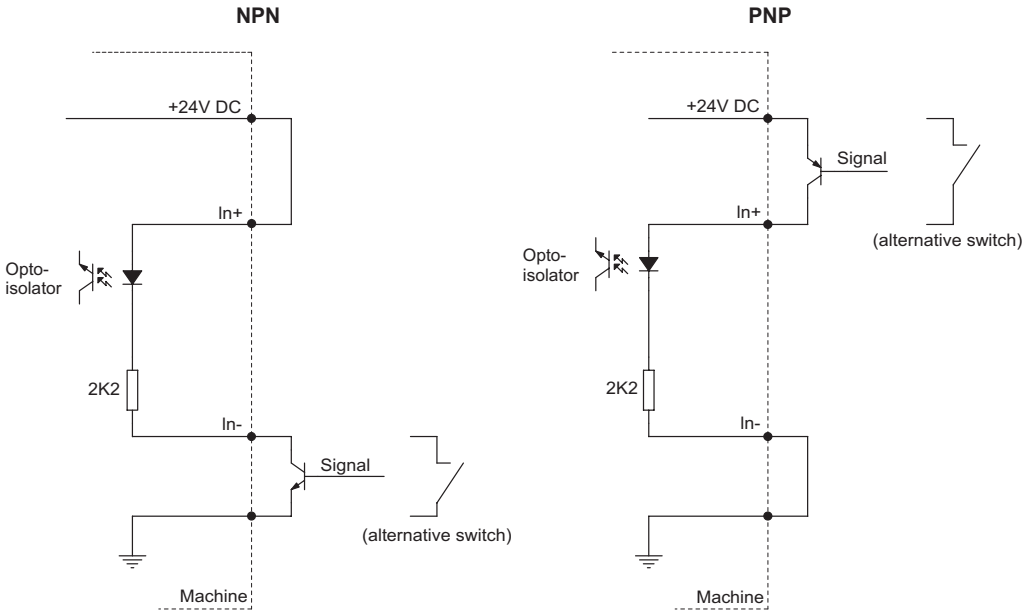


Figure 22: Connecting NPN (left) or PNP (right) inputs.

10.3.1 Product sensor

The product sensor starts the labelling. The source of the signal could be a optical sensor, a switch or a signal from a PLC. The time between start signal and start of dispensing (adjusted with POS) should be as small as possible. This means that an optical sensor should be placed 10 to 20 mm before the dispensing edge. The minimum distance is necessary for the internal speed compensation.

The machine is supplied as standard with one socket for connecting the product sensor. You may either use a NPN or PNP type sensor output.

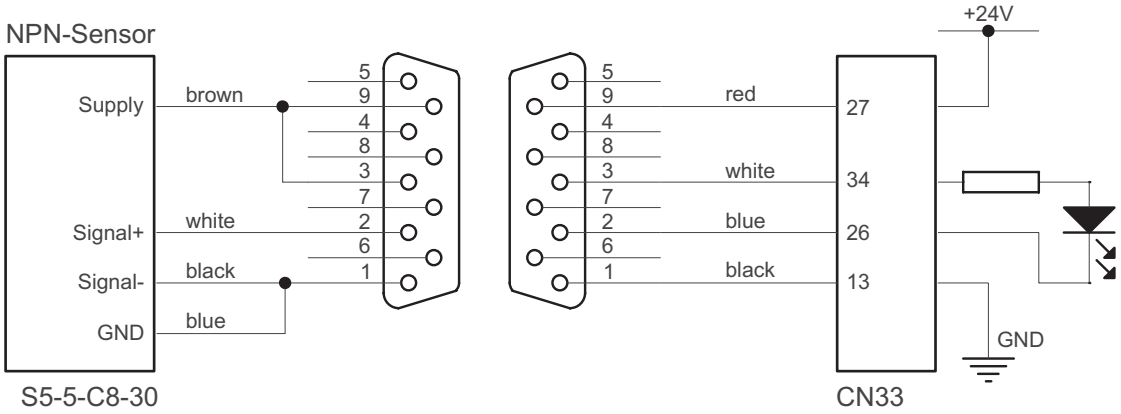


Figure 23 Example for connecting an NPN sensor (Datalogic)

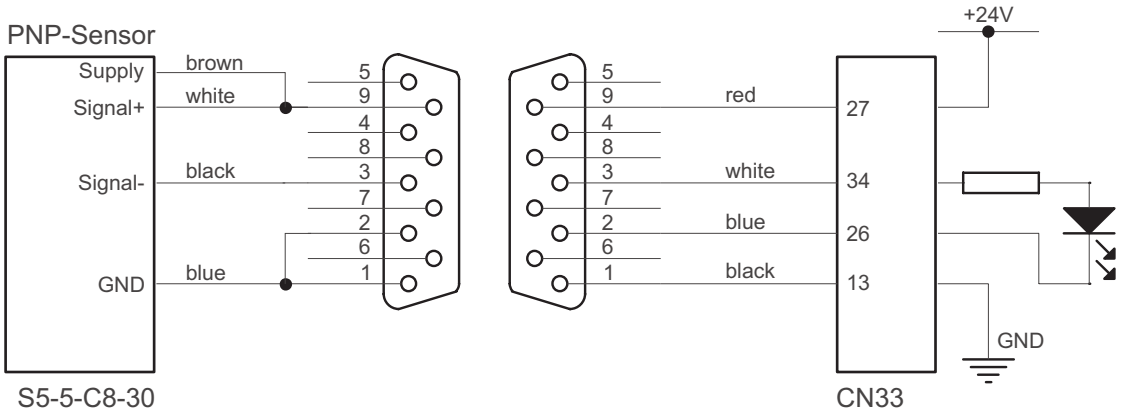


Figure 24 Example for connecting an PNP sensor (Datalogic)

10.3.2 OD Control sensor

Optional an OD control could be mounted to control the label roll. If the label material is nearly empty the sensor gives an signal. A warning message and an output signal inform the personal that in the next time the material has to be changed.

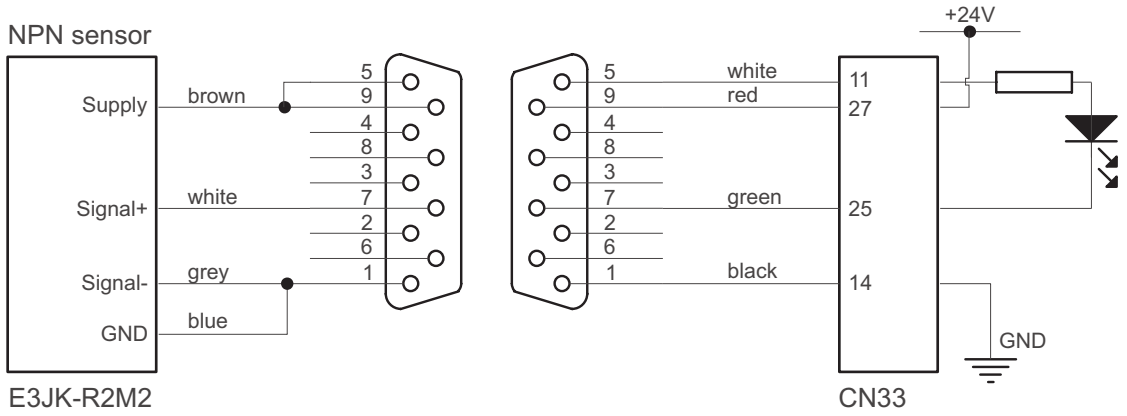


Figure 25 NPN connection of optional ODC sensor

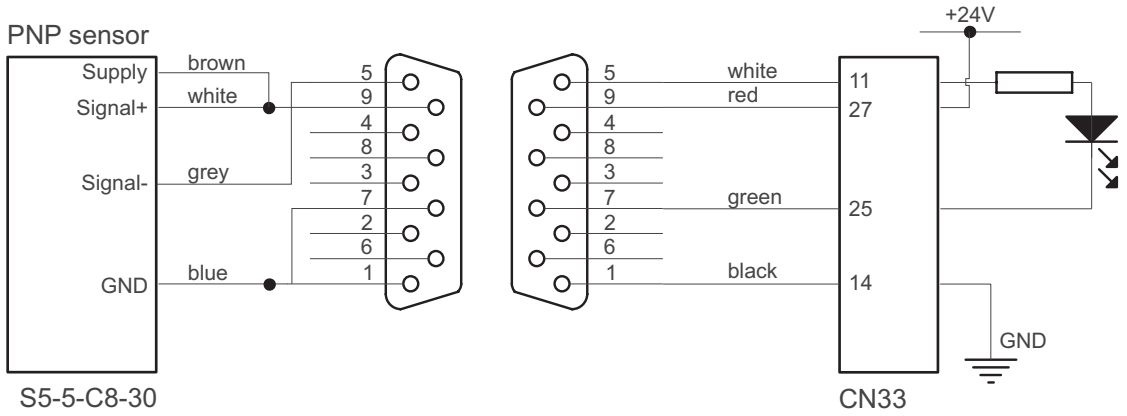


Figure 26 PNP connection of optional ODC sensor

10.3.3 APSF sensor

For the APSF function (Automatic speed follower) a rotary encoder has to be installed. For optimum labelling accuracy the rotary encoder should be selected so that it produces one pulse for every 0.125 mm of product movement. The connection of the encoder should be done with a shielded cable. For correct operation the rise and fall time of the encoder signal should be 1 µs.

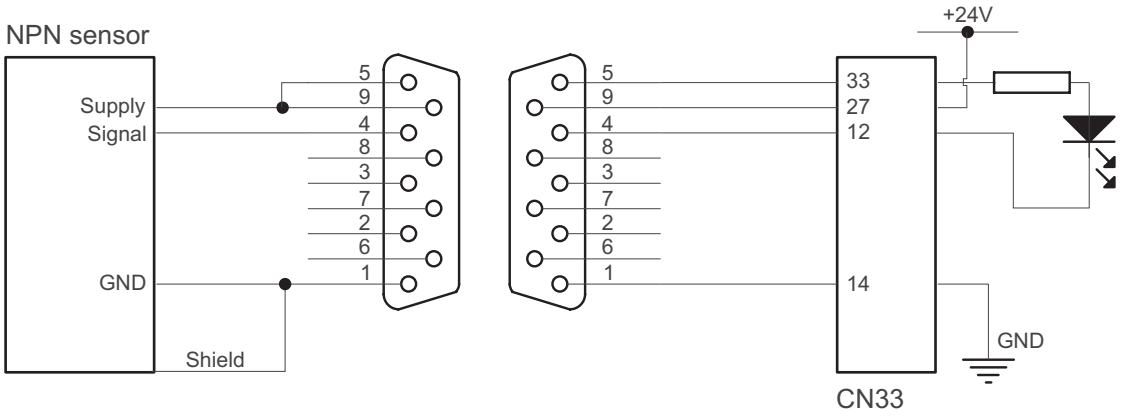


Figure 27 Connection of a NPN type APSF sensor

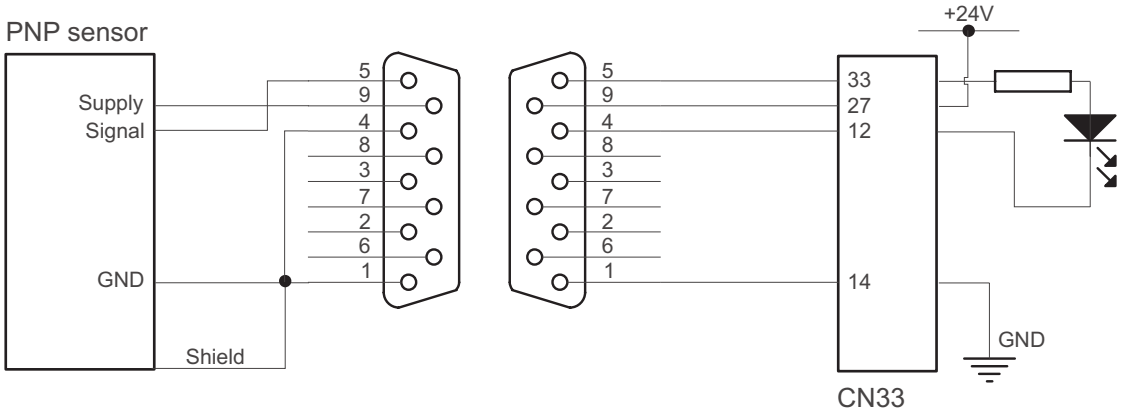


Figure 28 Connection of a PNP type APSF sensor

10.3.4 Control signals

An optional connector could be installed for integration of the machine in the line control.

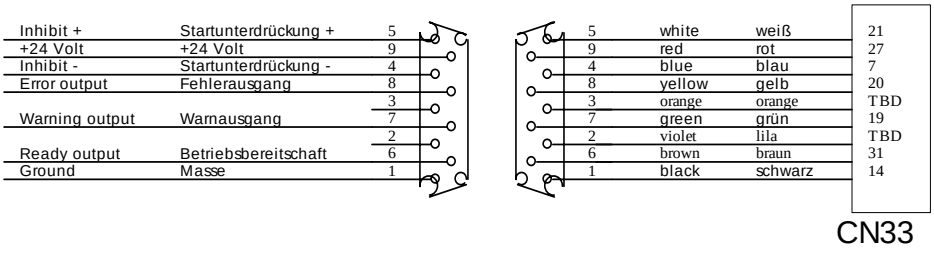


Figure 29 Optional connector for process contro

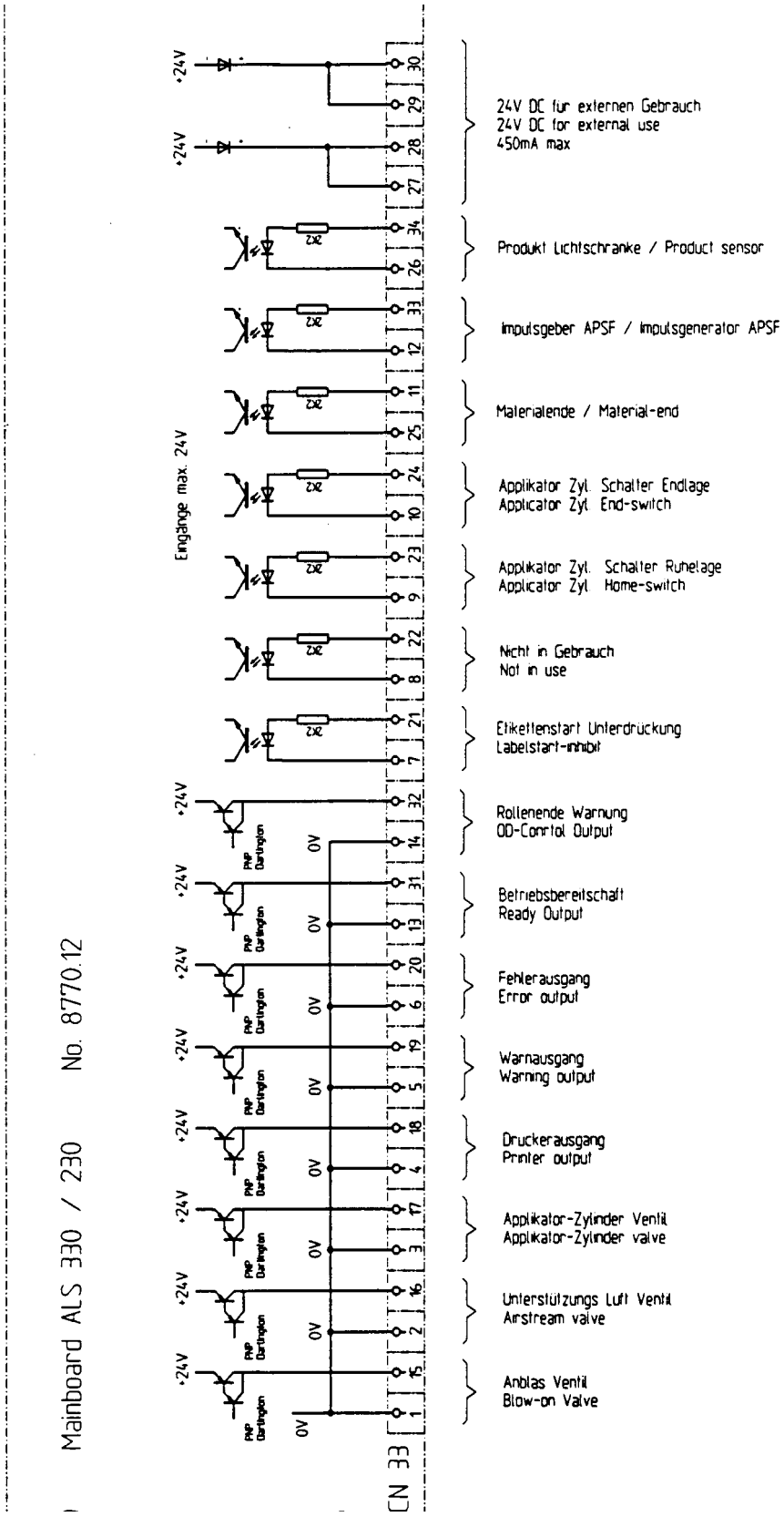


Figure 30 Internal I/O connector

10.4 EMI

To protect the machines against electrical noise and to protect production of electrical noise you have to follow this rules:

Rule 1
All metallic parts must have a good and plane contact (no lacquer, aluminium oxide is an isolator). Use scratch washers.

Rule 2
Signal lines (Data- , communication- and control cable) has to separated to power cables. The minimum distance is 50 cm (20 cm inside a cabinet).

Rule 3
All signal lines should be lead in the machine or cabinet only on one side.

Rule 4
Unshielded cables must be twisted (both poles).

Rule 5
On all inductive components (relays, valves) must be directly connected a clamp circuit (diode, MOV).

Rule 6
All signal lines must be shielded. The shield must have a good earth connection on both sides. For the connection use metallic clamps. Don’t use a soldered wire for this connection.

In case of different earth potential on both cable sides install parallel a cable of at minimum 10 mm2.

Rule 7
The shield of analogue cable (Video etc) should be shielded only on one side. Normally there is no such cable with labelling machines.

Rule 8
Line filter has to be mounted directly on the cable entry.

Rule 9
Cables should not fly in the air. Lead all cables nearby metallic, grounded parts. Ground unused cables and wires in a cable at minimum on one side, better on both.

Rule 10
Cables should not be longer as necessary.

10.5 Electronic diagrams

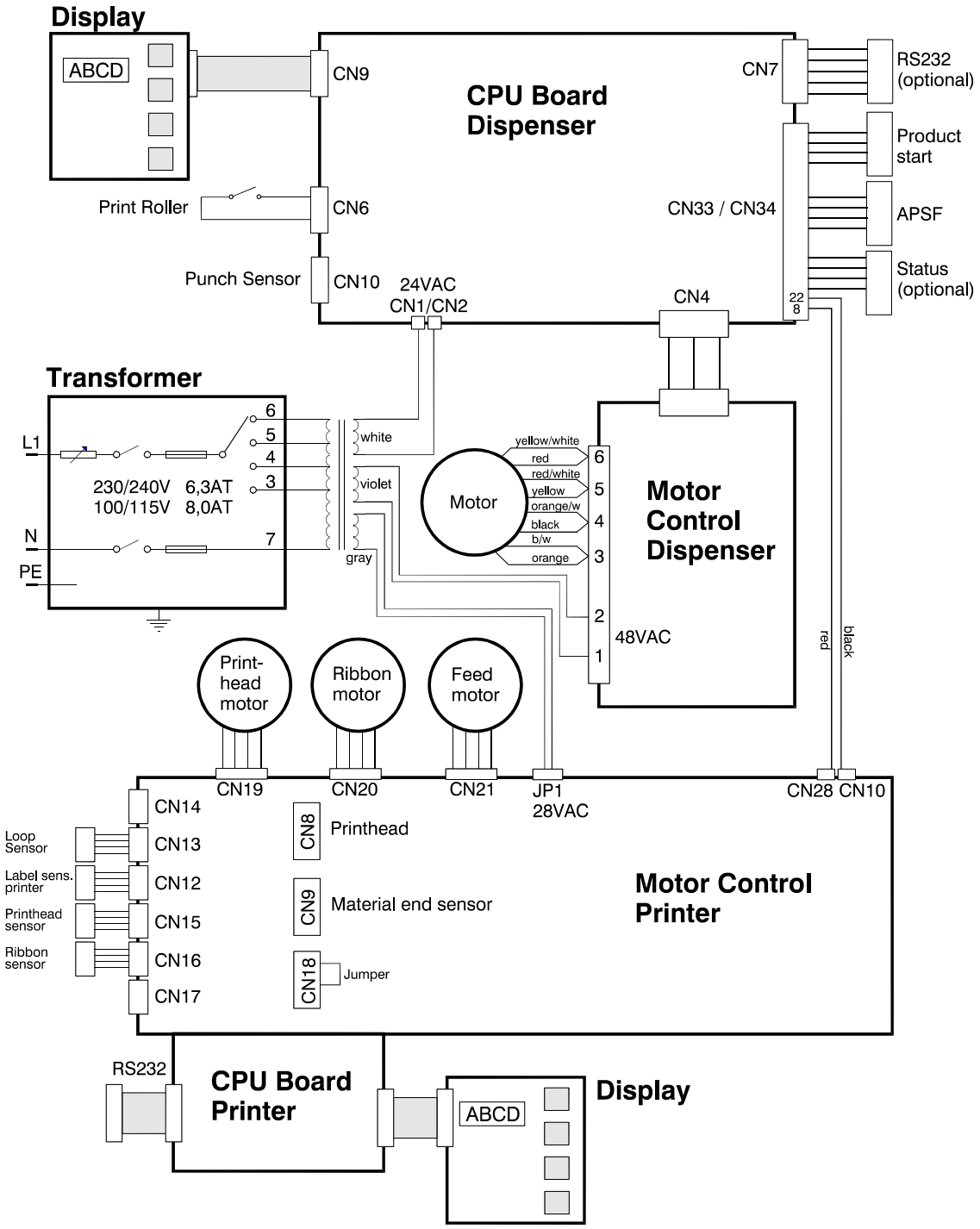


Figure 31 Block diagram ALX 720

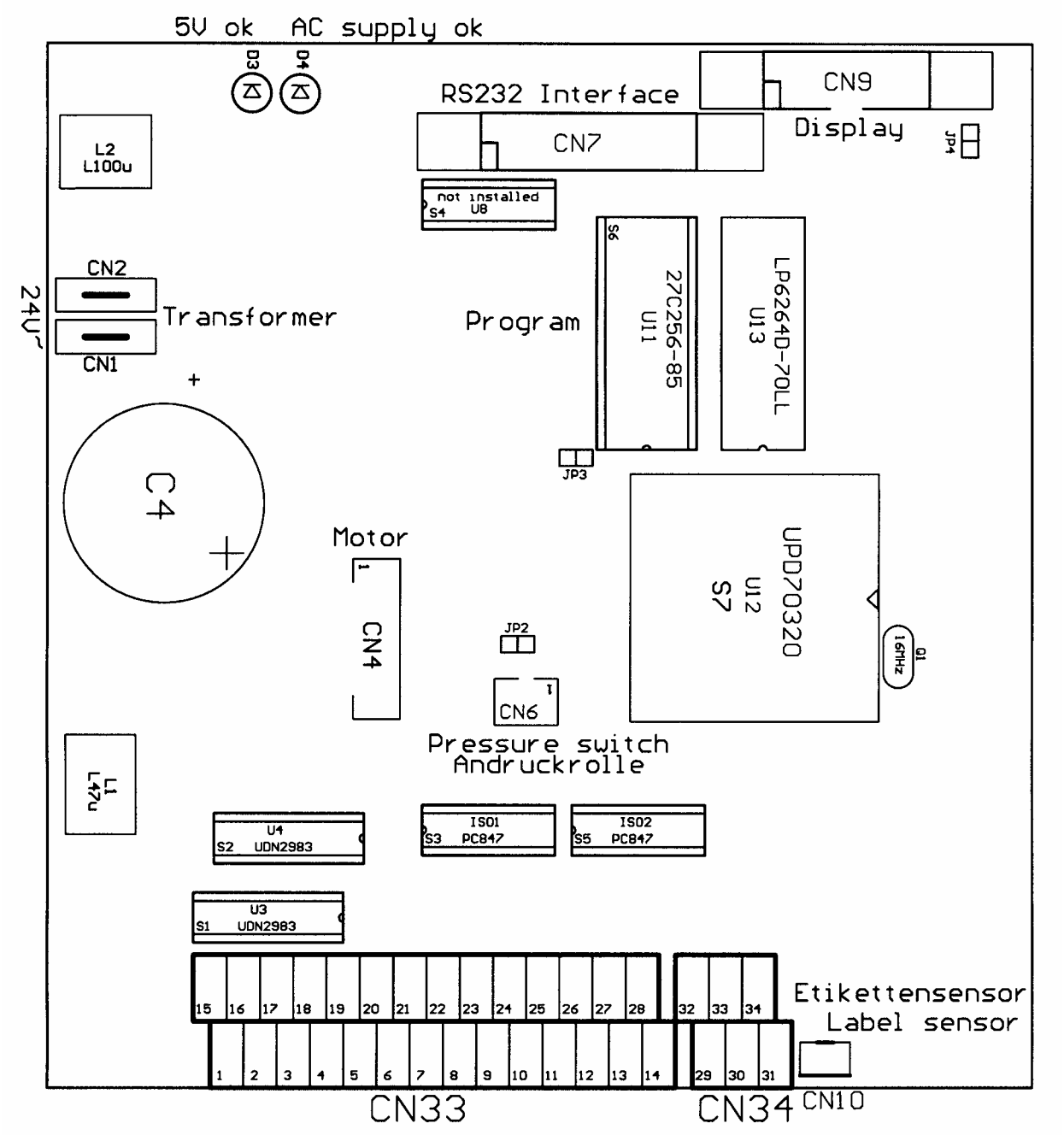


Figure 32 Layout dispenser electronic board

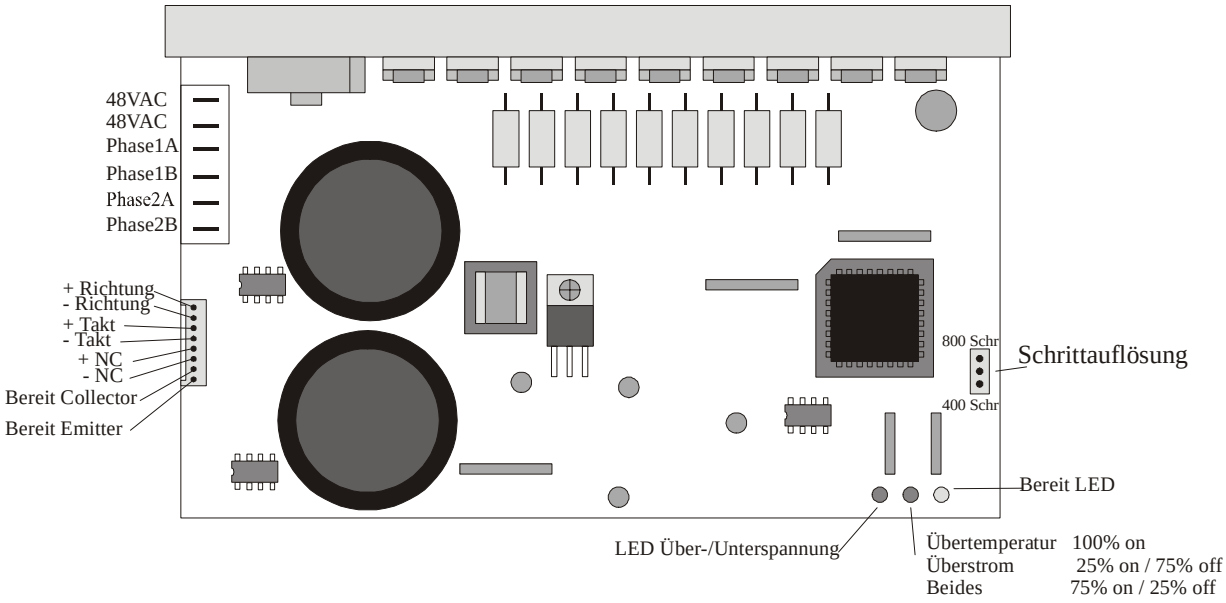


Figure 33 Mounting diagram motor control board

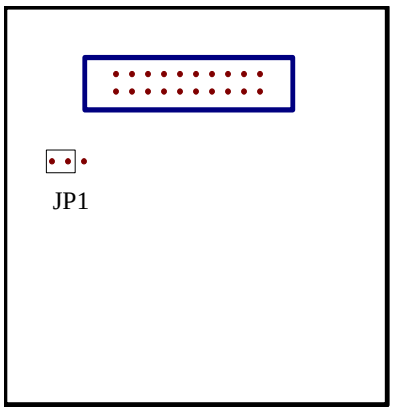


Figure 34 Display jumper setting

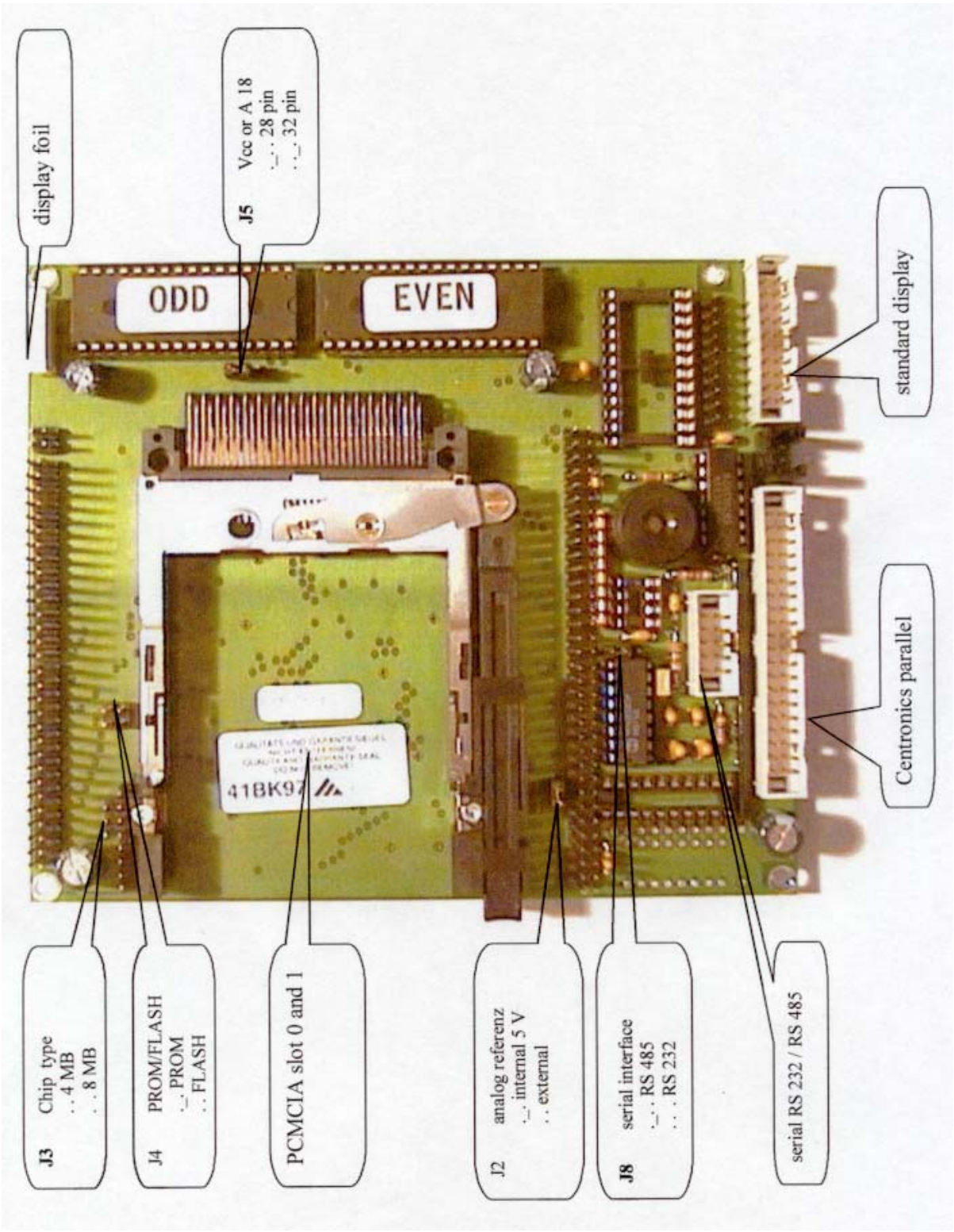


Figure 35 CPU board

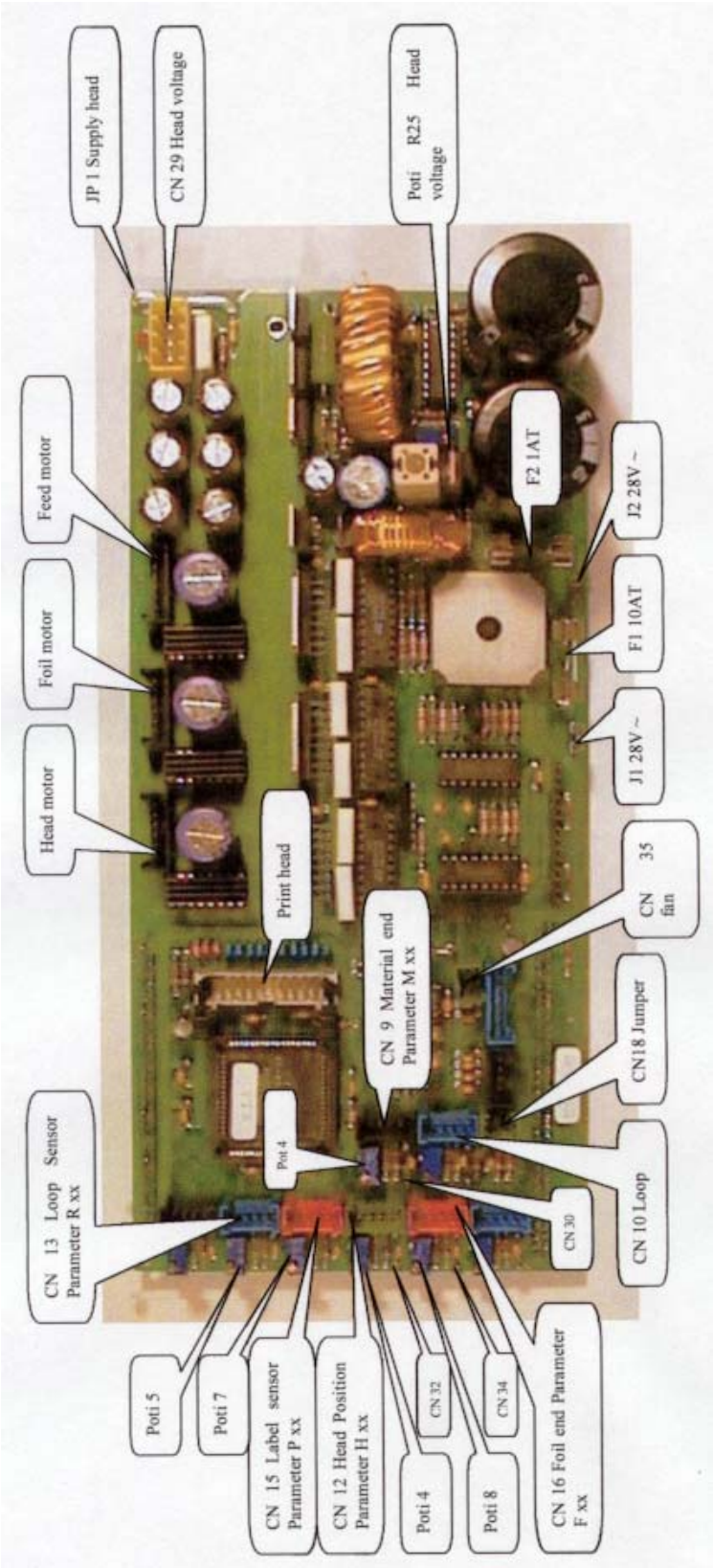


Figure 36 Connectors I/O board

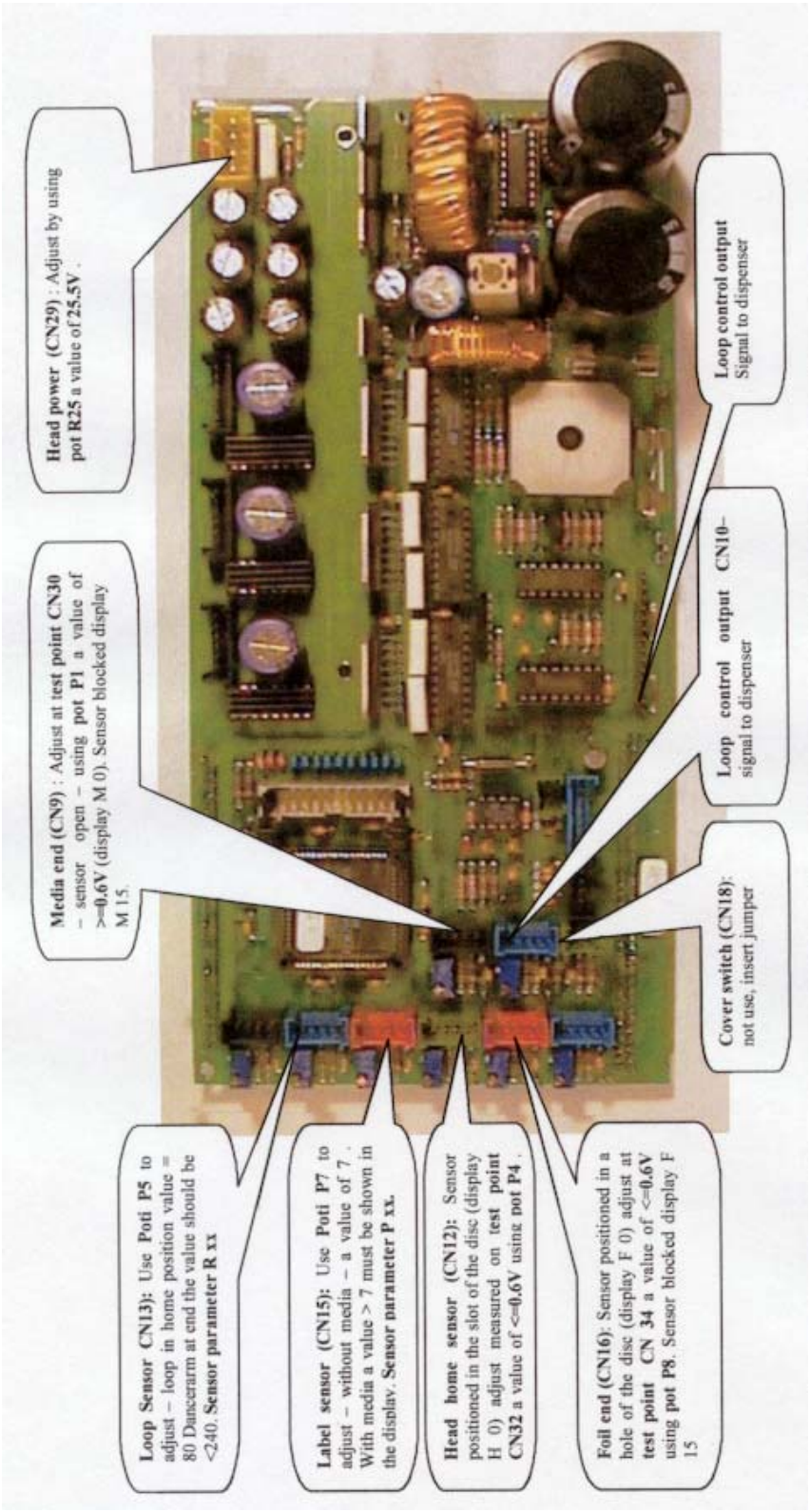


Figure 37 Adjustment I/O board

11. Technical specification

Description	Details
Label width	25,4 mm – 100 mm (incl. backing paper)
Label length	5 to 330 mm
Label roll	Roll with max. outer ∅ 300mm, core ∅1.5" (37 mm), 3" (75 mm) or 4" (100 mm) with optional adapter rings. Maximum roll weight: 4250 g
Type of stock	Self-adhesive labels suitable for thermal direct or thermal transfer printing up to 160 g/m^2
Ribbon	Roll with may outer ∅ 90 mm, inner ∅ 1" Width: 30 up to 110mm
Print technology	Thermal Direct and Thermal Transfer Print
Print head	Type: Near Edge Type Resolution: 12 dot/mm (300 dpi) Integrated temperature control
Output mode	1:1 at 100% imprintable label area
Interpreter	Easy Plug, Line Printer, Hex Dump
Fonts	17 Fonts inclusive OCR-A and OCR-B; 2 scalable fonts
Character modification	Scalable in X/Y direction up to factor 8, rotation: 90,180,270 degree
Bar codes	EAN 8, EAN 13 with Add-On 2 and 5, EAN 128, UPC A, UPC E, Code 93, Codabar, Code 128, Code 128 Pharmacy, Code 2/5 Matrix, Code 2/5 Interleaved, Code 2/5 Interleaved Ratio 1:3, Code 2/5 5, Code 2/5 Matrix Ratio 1:2,5, Code 2/5 Matrix Ratio 1:3, Code 39, Code 39 Extended, Code 39 Ratio 2,5:1, Code 39 Ratio 3:1, Code 128 UPS, ITF, MSI, Postcode (Lead- and ident code) All barcodes scaleable in up to 16 width and in the height.
2dim. bar codes	Data Matrix Code, Maxi Code, PDF 417
Print speed	100 up to 300 mm/sec in steps of 1 "/sec
Imprint exactness	+/- 1 mm in X and Y direction
Automatic foil saving	Starting up from > 10 mm imprint free length

Description	Details
Interfaces	Standard: serial RS 232 Optional (alternatively): serial RS 485
Plug-in cards	2 Slots (PCMCIA) with each 2 MB Memory, 1MB dynamic RAM
Label sensor printer	Self initialising infrared gap sensor; Adjustment range 12 – 98 mm;
Adjustments	Definition of parameters via menu or Easy Plug commands
Test print outs	Parameter adjustments, downloaded logos, font, line, and barcode library
Test functions	Print tests, Test routines to memory and sensor, Interface check
Remedies	Extensive library, continuation of print jobs without label loss.
Dispensing speed	0.2 - 30 m/min
Material transport	0.125 mm per motor step
APSF Automatic Product Speed Follower	Optional. Resolution: 0.1mm to 0.3 mm per pulse
Label stop accuracy	± 0.5 mm
Labels per min rate	Up to 400 / min, depending on label size, dispensing and printing speed
Rewind	Collapsible rewind
Dispensing edge	V-shape dispensing edge or L-shape holder with fixed, swivelling, spring loaded or pneumatic dispensing edge
Versions available	left and right hand
Dimensions (w x h x d)	653 x 784 x 372 mm
Weight	38 kg
Display panel	Printer: 3 key panel with 4 digit display Dispenser: 4 key panel with 4 digit display
Label sensor dispenser	Self adjusting infrared photo sensor
CE- marked	Confirms all relevant actual European standards
Protection Class	IP 41
Power consumption	500 W
Mains voltage	100, 115, 220 and 240 V (fuse size for all voltage levels 4A) ±10%, 50 or 60 Hz
Environment conditions	Operation temperature: +5° up to +35°C Storage temperature: -20° up to + 70°C Humidity: 45 to 75%, non condensing

Application specification
The labeller is designed and built for automatic apply of self-adhesive labels.

Advise for security
In order to avoid any risk of injury due to squeezing between the fixed dispensing edge and the passing product, it may be necessary to add a protection cover in front of the dispensing edge. The necessity for this has to be decided on case by case.

See also regulation EN 292 and 294.

11.1 Label Material

The printer is equally suitable for thermal transfer printing. Three factors are to be taken into account when choosing the material:

- Abrasive behaviour of the surface structure
- Properties with respect to chemical reaction on print-colour transfer
- Temperature required for colour- transfer

If the material is extremely abrasive, the print head is faster worn as usual. This criterion is particularly to be considered with thermal printing. It is not so critical with thermal transfer printing, as for this process a ribbon of a width exceeding the width of the material can be used. In this way the print head is protected over the entire material width.
Similar conditions prevail with a high print head temperature. Material and foil require a longer cooling down period, the printing quality is more critical and the print head is faster worn as on a normal rate.
Printing on materials with a higher specific weight than 240gr/sqm, slight corrections of print head pressure and position of print head may be necessary.

11.2 Thermal transfer foil

Foil are recommended to be:

- the rear side has to be coated with an anti static and friction reducing media (back coating)
- suitable for print speeds up to 12 inches/second
- specified to „Near edge type print head“
- wider as the material, i. e. the foil overlap the edges of the material by appr. 1-2 mm each side.

CAUTION! - Foil without these features may reduce printer performance and printing quality, in some cases even the print head may become defect.

12. Adjustment

12.1 Printer

Function	Factory	Application
PSPD	PS 8 (ips)	
MLEN	L 25 (mm)	
MWID	W107 (mm)	
PUNO	P 0	
BCHI	B 1	
UPCA	STD	
XPOS	XP 0	
YPOS	YP 0	
SSPD	SS 8 (ips)	
GAP	AUTO	
PORT	RS23	
SPOL	64KB	
BMOD	BON	
BAUD	9600	
PARI	NONE	
DBIT	8BIT	
SBIT	2BIT	
HAND	RTS	
PRID	ID 1	
EMUL	EASY	
NACH	IBM	
PUNS	SP 6	
FMOD	SAVE	
L-R	<-	
SW01	S100	
SW02	S150	
OMOD	ONLI	
CODE	COD2	
HRES	1250	
LREP	R2	
CSET	224	
MEND	YES	

12.2 Dispenser

Function	Factory	Application
P_S_	LEDG	
MACH	230	
MDIR	←	
RAMP	FAST	
MLAB	WARN	
COMP	ON	
APSF	OFF	
APPL	DIR	
BAUD	NONE	
PARI	NO	
SBIT	2BIT	
DBIT	8BIT	
DIST	76.0 mm	
PHT	1	
SLEW	FAST	

Function	Factory	PD01	PD02	PD03	PD04
POS(STAD)	100.0 mm				
VELO	30.0 m/min				
STOD	76.0 mm				
BLOW(APT2)	1 ms				
LPIT	AUTO				
CONT	AUTO				
PRDL	AUTO				
EGRA	500				
APT1	200 ms				
APT3	0 ms				
APOS	0				
ASTP	0				
PDT	OFF				

Function	PD05	PD06	PD07	PD08	PD09
POS(STAD)					
VELO					
STOD					
BLOW(APT2)					
LPIT					
CONT					
PRDL					
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